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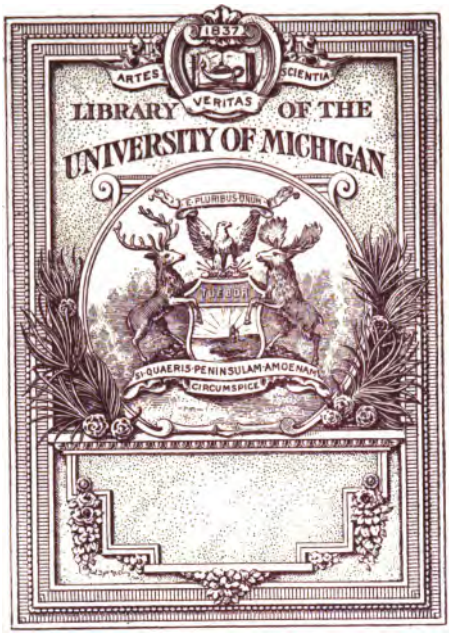

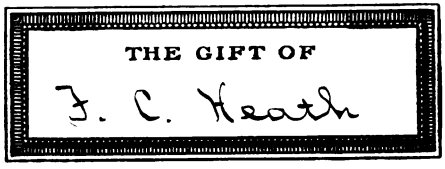

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TRANSACTIONS

—OF THE—

INDIANA

State Medical Society,

1893

INDIANA STATE MEDICAL SOCIETY
MEDICINA CAUTIONIS ET CURAE MORBORUM VERA SCIENTIA EST PHYSIOLOGICA
ORGANIZED MDCCCXLIX

FORTY-FOURTH ANNUAL SESSION

—HELD IN—

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PREFATORY.

The Transactions of the Forty-fourth Annual Meeting have been delayed several months on account of the failure of Indianapolis banks. The Committee on Publication is not responsible for the delay.

The Transactions contain twenty-four papers, and discussions on most of those read. A part of the discussions are separated from the papers, owing to the fact that they were mislaid by the stenographer and were not found until the papers upon which they are based were in print.

The committee again makes its annual and urgent appeal to the secretaries of the county societies to give the full name of each member of the society, and to make their report in just such form as it should appear in the State report.

Hoping that the arduous labor of the Chairman of the Committee on Publication in revising papers and discussions has resulted in a volume creditable to the Society and to the committee, this volume is

Respectfully submitted,

A. W. BRAYTON,
Chairman.

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PRESIDENT'S ADDRESS.

BY GEORGE F. BEASLEY, OF LAFAYETTE.

THE PRESENT TENDENCY OF THE MEDICAL PROFESSION.

When we look back through the years that have intervened since this Society was organized, we see on every hand the marks of change and progress.

Cities and towns have taken the place of villages and hamlets. The hum of the manufactory is heard where then the husbandman tilled the soil. The numerous lines of railways intersecting and dividing the State, replacing the slow and laborious transportation of other days, all tend to show how much we have progressed since that time.

We have reason to congratulate ourselves that we live in this age of change and progress; that we live in the age that has made the greatest strides in discovery and civilization; so that no part of the habitable globe has not been penetrated and brought, more or less, under the benign influence of civilization; the age that has done more than any other to educate and elevate mankind, and while doing this has done so much to alleviate sufferings; the age that has done much to prevent the spread of the various epidemics and thus render comparatively harmless the dread scourges of former days; the age that has done so much to make man better and at the same time making him wiser.

We live in the age that has made the greatest development in the wealth among the masses, and with this has developed the greatest philanthrophy; we live in the age that has done more to break down the barrier between the various religious sects, bringing harmony where before was discord, and thus tending

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toward the goal of universal brotherhood; to such an extent has this progressed that during the coming summer there will meet, in one body, representatives of all the various religious sects throughout the world; we live in the age that has witnessed arbitration taking the place of armed conflict and force of arms with all its attending horrors and bringing peaceful solution to vexed questions of State; the age that has made the greatest strides in medical knowledge and surgical attainments; the age that has witnessed the development of so many new sects, of so many new theories.

And when I look back over a pilgrimage of more than a quarter of a century in the walks of medicine and noting so many changes, the development of so many theories and sects that have blazed forth brilliant and dazzling, only to fade into the darkness of unforgotten hopes, I am often constrained to ask, "Where are we drifting?"

Medicine not being an axact science will tend more or less to theories, and, as experience shows, many are to be based on false foundations, they only disappear to be followed by others equally false, chimerical and unstable.

Medicine, as the result of experience, drifted more or less to empiricism. This tendency must be most carefully guarded lest it run riot.

Ours is an ennobling and uplifting profession if we keep its objects in view. But we are too apt to put them to one side while we arrogate to ourselves more than our share of importance, and in the mad rush for power and for pelf we too often overstep the bounds of prudence and propriety and thus bring discredit on our profession.

I have often thought that in these latter days that the profession was losing caste, that it did not hold as high a plane in public estimation as formerly.

Was it the fault of the profession or the fault of those composing it; the fault of the educator or the fault of the soil in which the seeds of knowledge were sown or the manner in which it was planted and germinated? The profession and practice of medicine is to a great extent a lonely walk. So much of the time alone with our communings, no company but

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our own thoughts, makes many of us misanthropic, develops those traits of character that tend to skepticism and doubt until we scarcely believe ourselves, much less others.

We are apt in these times to lose faith in our professional brethren, to lose faith in our profession, to lose faith in ourselves. On the other hand we may go to the other extreme and reason ourselves into the belief that we are the only elect; that we only are perfect; that we alone are infallible and incapable of doing wrong; that we make no failures; that any short-comings do not rest with us but the result of unavoidable circumstances over which we have no control. There is also, to brighten and illumine this picture, a happy medium. The one who always looks on the bright side of everything; the one who thinks all men honest and upright, doubtful alone of himself; the one who always brings sunshine wherever he goes, brightening and cheering all; the one whose encouraging words are a tonic for the low spirited and disconsolate; the one who believes all as upright as himself, preferring the shock of loss of confidence to the thought that this is an example of total depravity among his professional brethren.

No profession requires a stricter or more circumspect walk than that of medicine. No profession is so much in the confidence, so near to the hearts of the people, as the medical. The clergy may point the proper path, point in roseate hue its charms; chide the short-comings; exhort and plead for them to turn from the error of their ways, warning them of dire results if they fail to follow.

The legal may counsel and be very near and in the confidence in the times of trouble and embarrassment.

But neither of these are at all times so near the heart or have so much the confidence of the people as the medical.

Hence it is that we should carefully guard our ways and so regulate our conduct that it will at all times uphold this honor of the profession and not tend to lower and thus bring it into discredit.

Our professional, as with our other lives, are as we make them. There is no such thing as luck, be it good or bad.

Circumstances and surroundings may, for awhile, carry to the front an inferior and undeserving person, but the test of time

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will show the transparency, and, as water, he will soon find his level.

I now ask, "How can we best keep up the high standard of the medical profession?"

Can it be done, as so many suggest, by reorganizing and raising the code and the constitution, the landmark that has so long been the watch tower? Or would it not be better to reorganize ourselves and let us "see ourselves as others see us?"

The laity care but little and have less interest in the code than they have in the ability of the physician to relieve suffering and cure disease.

They care but little what the school, what the sect, so the end is accomplished.

There is not to-day the wide difference in the medical sects that there was when the code of ethics was drawn.

That was a day of wide difference in all things.

The different religious sects were as far apart as the medical. The ones who believed in immersion thought as lightly of those who only sprinkled as did those who bled and salivated thought of the ones who used emetics and those who used the diluents. But as the religious bodies are having a more kindly feeling toward each other, I think our hearts are softening toward some of the so-called vagaries of former days. It is a well-known fact that no system or sect of medicine that has sprung up, savering, it may be, more or less of quackery, but has been of some benefit to regular medicine.

We now no longer bleed and salivate the confiding and much suffering public; but with granules, tablet, triturate and dosometrical doses we tread so close on the border line of he of the infinitesimal dilutions, and he in turn has so increased the amount and strength of his triturates and dilutions, until reading the prescription one must look further to distinguish the particular school to which he belongs.

"Time changes and we change," and the doctor of to-day is a different person from the one who laid down the laws that now governs us.

We see changes in every part and practice of medicine, except "the code." That has stood like the laws of the Medes and Persians, unchanged and unchanging.

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The momentous question now before the medical profession of the regular school is, "Shall the code be changed, and if changed, how and in what part?"

The collecting and compiling of the various suggestions on this subject that have appeared in the current medical journal during the past year, would make an interesting as well as a most bewildering volume. So many theories advanced, so much advice proffered pro and con, for and against the code, leads only to the conclusion that the important question is far from being settled, and that any attempt to change it will create such an upheaval that the stability of the time-honored association would be shaken so thoroughly as to endanger the foundation thereof.

Can we improve it? Some deny and deride the opening chapter, "On the Duties of the Public to the Profession," as being superfluous. But when we stop and think, how many of us are on the same line? The room we occupy would be much better than our presence.

We, as a profession, are too apt to hold ourselves too much aloof from the general public, as though we belonged to a higher plane than they; that we are a little more sacred than the common herd, and for this reason, if for no other, I do not wonder the public runs wild after new theories and sects; taking up any and all sorts of dogmas in the name of medicines.

We should occasionally, at least, unbend our dignity and give an ear in place of the look of profound wisdom.

The laity are willing and anxious for any advice in all measures that tend to the promotion of their welfare. Hence, it should be the duty of every physician to inform his patrons on all measures tending to their material welfare.

The part relating to the duties of physicians to the public is sound doctrine, and one that can not be too often read. Read it in the morning in connection with your devotion, and again on retiring at night, keeping it always before you like the pillow of fire, and fewer of us would go astray.

The portion relating to the duties of physicians to each other is, I am sorry to remark, a chapter seldom read and so often violated. This is not often consulted until some one

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who has so closely hugged the border lines of reputable medicines as to create doubts of his plan, feeling himself aggrieved when some brother practitioner, inadvertently it may be, oversteps the line. Then to relieve his conscience, and at the same time cover from the public gaze some of his own shortcomings, prefers charges embracing the sundry clauses. Then it is that the code is brought forth, carefully dusted, cleared of the accumulation of cobwebs, the special paragraph is cited and the trouble begins. A track is opened which grows wider and wider, stopping only when the State Society is reached, there to bother and worry the Committee on Ethics, who, by their decision, pro or con, are forever afterward under the ban by one or the other faction, while the original violator goes along in the same old way.

I think these portions should be read along with the others, and I think it would not bring pleasant dreams to many.

The part relating to notice in the secular journals is, like many of the laws of the land, virtually a dead letter, although they look and read well on the pages of our statutes.

I think no class of persons get quite so much free advertisement as we do. It may be contrary to the code, but we somehow "get there just the same," and innocently wonder how it happened.

Of course it is merely given as a matter of general news, but we are apt to expect that the article will be of benefit to us; like bread cast upon the water will return again fourfold.

This procedure is carried to an extent that it becomes nauseous to the honest and conscientious physician. Of course there is much that will fall in the hands of the busy, omnipresent, pushing news gatherer in spite of the best endeavors. But when we see an account in the daily paper of a delicate surgical operation on some well-known lady, or the details of a difficult operation, we can not help believing that some one near headquarters has given the desired information.

As before remarked, this clause is ignored and violated daily, and by men who occupy places of honor in the profession, and when these so conduct themselves, what can be expected of us, the rank and file, but to follow the example our leaders set before us.

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The part relating to patent rights is especially in the latter clause violated daily. We can, each of us, readily call to mind more than one claiming to be regular in all their professional relations, members, no doubt, of many of the numerous medical societies, yet are known to have the reputation among the laity of possessing some patent remedies unknown to the balance of the profession, and these serve as a basis or capital for business, and are worked for all they are worth. I knew of a doctor who made a great reputation in the use of the old time-honored remedy, Pudor Gly. Ayrshego Co., holding forth to the laity that it was only after years of profound study and research he finally worked out the compound; yet this man was most tenacious in the application of the code to his fellow practitioners, and let no opportunity pass to remind them of their failings.

That portion relating to interference during the absence of the regular attendant should be read a little more carefully than most of us read our Bible. If it were more carefully studied and applied to every-day life, I think much of the jealousies and bickering among physicians would cease.

Taking the code as a whole, I can not see how we can much improve or modify it.

If we lop off one portion it seems to leave the balance in an unsightly, mutilated condition, so it seems that it must be all or none.

Of course the code can not make a man honest or upright. Neither does the Bible make all its readers Christians. But the perusal might, as with degenerate man, wake up some latent spark and cause it to grow into a flame, spreading warmth and cheer where before it only put forth gloom and sadness.

If a member of the profession wishes to be unprofessional, he will find some means by which he may sail so close to the border line of reputable medicine that it will take a discerning eye to detect the line of demarkation.

We all know that the code is violated in some of its requirements every day, and more and more as the years grow older. One cause of this is the overcrowding of the profession. The

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sharp competition for business, in fact in many cases the struggle for bread, tends to down the finer feelings of the men and leave only the baser. Another cause is a class of men that is crowding into the profession. Men who would fail at other means of livelihood, but by liberal use of assurance and diplomatic measures manage to sail, often for a long time, on the top wave of prosperity.

An impression prevails among many young men that the profession of medicine opens the way to an easy, honorable life, full of honor, respectability and finally a competency. But let the average young man, one of fair ability, enter any of the many business openings of the present day and apply as many hours and as assiduously as the medical man should do, he will surely rise and possess all the honors that wealth and position will bring.

Statisticians state the best class of students from the universities are averse to entering the medical profession. That the ones who do belong to the second and lower classes. The truth or falsity of this I am not able to state. But of one fact I am cognizant; that some very crude material is turned out from some of our best medical schools. It is also stated on good authority that over forty per cent. abandon, after a few years of unsuccessful struggle, the profession and seek something more remunerative and congenial. How much better for all if they had never entered, for the time they are thus employed is worse than lost, for while lost to themselves they have more or less demoralized the practice at some point, creating and leaving jealousies and misunderstandings that require many years to wipe out. Yet, with all this crowding, medical schools keep forming and grinding out material to further flood the country until the supply far exceeds the demand. In the commercial manufacturing world, when the supply exceeds the demand, the various firms form a combination, and to make it more palatable to the unsuspecting public gild it as a "trust." They then shut down until the supply on hand is exhausted. In contradistinction to this business-like way, the medical profession, not satisfied with the over-abundant supply of material on hand, and factories for the making of more go on increasing the amount of material and schools,

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until it is no wonder they become a drug on the market, and that they have to resort to unprofessional means to keep the wolf from the door.

To properly equip and maintain in a successful manner any kind of an educational institute requires money. Sentiment and good resolutions are all conducive to the well-being of all such, but unless there is money it will soon come to a close.

Unfortunately, but few of our medical schools are so endowed, or are so situated financially as to run independent of the fees from the students. Hence, the incentive to so smooth the way and to make it pleasant and palatable for the applicant for medical honors, so the fees are forth-coming.

The annual announcements that are spread broadcast over the land are filled with requirements that to the uninitiated seem appalling in their stringency. Yet we see men bearing diplomas from leading medical schools who are so ignorant of some of the portions of the practice that we are appalled.

We wonder, and there seems to be but one solution to the problem, it can not be the honor that they will bring to the institution; it can not be for the benefit of the public or the profession that they are thus turned loose half-fledged. Hence, there seems to be but the one solution and that resolves into the belief that it is solely a pecuniary one. Again, it is noted that some of the graduates come forth full-fledged specialists. Such are not content to enter the humdrum drudgery of general practice with all its cares, its worries, its sorrows; it seems so much easier to poise and sail in the calm and unruffled sea of the specialist, than the tempestuous weather of the former.

There is to my mind another reason for this excessive budding of specialists. Each one of the professors, and how long the list appears, expatiates on his special branch, as though that one is the *sine qua non*, the others being only adjuvants. Hence, the country is filled with specialists who, outside of the groove in which they run, are practically helpless.

I think it would be much better for the profession, and much more so for the public, if less stress were paid to the special branches during the tutelage of the student. Thoroughly ground him in the rudiments; make him, if possible, first a physician, then if he develops a taste for a special branch,

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give him the post courses and we will have a better class of men in the profession, and we would not be compelled to be explaining to the public our positions, or as a medical friend expresses it, "Where are we at?"

I think, as stated before, that we have too many medical schools, consequently too many professors and too few teachers. Unfortunately the latter, like poets, must be born, they can not be manufactured.

Another failing is the tendency to the indiscriminate adoption of the various remedies put forth from the numerous pharmaceutical manufactories.

They claim that they go hand in hand with the physician. But judging from their literature and the amount of free advice, they have the leading hand, we calmly following and administering what they advise.

I have often thought, if this be true as laid down with such positiveness by them, what is the use of wasting our time in studying the cause and effect of medicine, for we have only to reach out and there is at hand remedies for each and every ill that human flesh is heir to, all bearing the endorsements of those high in the scale of leaders and teachers.

The literature as furnished by many of the numberless medical periodicals, each claiming to fill the final round, thus making the medical ladder complete, run quite too much to verbosity to be of the benefit they might. It seems as though the writers aim more to quantity than to quality, producing an article replete with extracts and other men's ideas rather than originality.

What is needed to elevate the standard of medical excellence is that we should each and every one resolve himself into a committee to do his part. Discourage the entrance of those we know will not be fit for the trials and vexations. Lay before them the dark rather than the bright side of the picture, and while each cloud has its silver lining yet we often pass through much gloom and discouragement ere we reach it.

Another means of elevating and increasing our usefulness is for medical men to meet more frequently, attend all the meetings of our society. Too often we allow trivial matters, those

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that could be postponed without detriment to any one, to come between us and the meeting.

There should always be some medical news of interest to exchange; if you have not these then discuss some of the current topics, anything to get out of the grooves into which we so often drop and are so averse to leaving. When we mingle with others we find that often they know full as much and often more than we and we are thus stimulated to investigate. And as the Scripture enjoins, Let your light so shine that other men may see your good works.

As I stated in the beginning, the profession is to a great extent a lonely walk, hence we should embrace each and every opportunity to mingle with others, disseminate what little knowledge we have and perchance absorb much that is new and of benefit to ourselves.

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MEDICAL MEN AND MEDICAL PRACTICE IN THE EARLY DAYS OF INDIANAPOLIS.*

BY W. H. WISHARD, M. D., INDIANAPOLIS.

In this paper I shall confine myself to the first fifteen years of the early settlement of this city, from 1821 to 1836. To judge correctly of the ability and worth of the physician, we must take into consideration the opportunities he may have had to acquire a knowledge of the profession and the remedial agents that were in use in those days. Prior to 1819 there was not a medical college west of the Alleghany Mountains, and but one medical journal in the United States, and that was published at Philadelphia. The laws required every physician to be licensed by a Board of Medical Examiners. The majority of our best practitioners had never seen a medical college. Such were the opportunities of early physicians of this place.

Indianapolis was laid out in a very dense forest, with a heavy undergrowth of spice wood, prickly ash, weeds and grape vines that made it impossible, in many places, for a man to go through the forest on horse back. There was but one road opened that might be called a highway. That was from Brookville, Ind. There was an Indian trail from Strawtown and Connor's Prairie to Vincennes, known as the Vincennes trail. In the spring of 1820 a man by the name of Berry cut out or blazed a trace along what is now the Shelbyville pike, passing through the east side of Johnson County. About 1821 or 1822 there was a wagon road opened from Columbus, Ind., and known as the Madison road.

*Read before the Marion County Medical Society, December 6, 1892, and ordered to be sent up to the State Medical Society.

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DR. SAMUEL G. MITCHELL.

Such was the condition of the country when the first physician, Dr. Samuel G. Mitchell, came to Indianapolis, April, 1821. He came from Paris, Bourbon County, Ky. He was a native of that State. He was a licensed practitioner, and had never attended a course of lectures. He had formerly been in very independent circumstances. In an evil hour he indorsed for a friend, who failed, and he lost his home and all his property, and was reduced to poverty. He sought a home in the wilds of Indiana. He was in the prime of life. His family consisted of a wife and one daughter. He built a log house on the corner of Tennessee and Washington streets, where the Lorraine building now stands. Soon after, he bought a lot on the northwest corner of Washington and Meridian streets, where he built a frame house, sixteen by eighteen feet, with a shed room in the rear. There he lived and kept his office. He was a devoted husband and father, and noted for his hospitality and generosity. The doctor was a large and corpulent man. He had such a burden of adipose tissue that I never knew him to ride faster than a walk or a slow, shambling pace. In 1832, during the Black Hawk war, there were five companies of mounted riflemen enlisted here to scout in Northern Indiana and Illinois. The battalion was commanded by Col. Alexander Russel. Dr. Mitchell was appointed surgeon, and Dr. John L. Mothershead, assistant surgeon. To enable him to double-quick on horse back, he went to a harness maker and had a leather belt made, reaching from the sternum to the pubes. He put on his hunting shirt, then his belt, and then mounted his bay horse, that was proportionately as large as the rider. I can see him now as he rode through the camp, which was located on the north side of Washington Street and west of West Street.

The doctor's wife died in 1829. His daughter had been married about a year when she died in 1831 or 1832. The death of the doctor's wife and daughter was a sorrow that he never got over. In 1836 the doctor had a paralytic stroke. He was poor and helpless. His friends cared for him as best

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they could. During the doctor's days of prosperity in Kentucky there was an orphan boy in the neighborhood by the name of Palmer. The doctor provided for young Palmer, gave him a literary and medical education. Young Palmer emigrated to Ohio, became an eminent physician and prospered. When he heard of the destitution of his old benefactor he sent a conveyance and brought him to his home, and cared for him as tenderly as ever a devoted son cared for his father. Under the roof of that good Samaritan the doctor breathed his last in February, 1837. All honor to Dr. Palmer. Such was the life and ending of the first physician and the first President of the Medical Society of Indianapolis.

ISAAC COE AND LIVINGSION DUNLAP.

Dr. Isaac Coe was the second physician that settled here. He arrived in May, 1821. He was a native of New Jersey. He came well equipped to practice his profession, bringing with him a large supply of Peruvian bark and wine, the most reliable agents to combat chills and fever at that date. The doctor first settled on the banks of Fall Creek, near where the City Hospital now stands. After the sale of lots he purchased a lot on the Circle where the Columbia Club House now stands. He was living on Fall Creek in 1821, that memorable year for sickness and death. There was not one well person in ten, including women and children. Drs. Mitchell, Dunlap and Scudder were all sick. Dr. Coe was the only physician able for duty. The doctor performed well his part as physician, nurse and cook. Dr. Coe could be seen at all hours of the day and night wending his way from cabin to cabin, through almost an impenetrable forest, the owls hooting and the wolves serenading him in his lonely walk, and the rattlesnakes shaking their tails every few rods to notify him that they were on the war-path. The picture is not overdrawn.

During August and September the mortality was great. Dr. Coe was prematurely gray. Fearless, conscientious, and a devoted Christian, all he wanted to know was what was his duty, and he would brave all danger to do it. He helped to organize the first church and Sunday-school in this place. He was at

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the head of all benevolent enterprises. He was heroic in his treatment of diseases. He used opium extensively in the treatment of fever, after the free use of the lancet, emetics and cathartics. In 1837 he was one of the Fund Commissioners of Indiana. He spent much of his time in Brooklyn and New York, where he became a convert to homeopathy. On his return home he made an effort to practice homeopathy. He never succeeded in doing much in that line of practice. After the death of his wife he spent most of his time in the Northwest with his sons, where he died. His remains were brought here and deposited in Crown Hill by the side of his wife.

Dr. Livingston Dunlap came from Cherry Valley, N. Y., in the latter part of July, 1821, making the journey on horseback. He made his home with Dr. Mitchell. The firm was Mitchell & Dunlap, the first medical firm of this city. In August Dr. Mitchell, wife and daughter were all taken down with bilious fever. Dr. Dunlap in a few days was prostrated by the same malady; all four were confined to their beds in a small log cabin. One of the neighbors took compassion on the afflicted household. He took Dr. Dunlap on his back and carried him to his home, and cared for him without fee or reward. This little incident made them fast friends for life. Dr. Dunlap took a high stand as a physician and surgeon. In fact he was the only surgeon until 1830 when Dr. Sanders came to divide the laurels with him in that field. The doctor did not graduate until 1830, when he received his degree at Lexington, Ky., from the Transylvania Medical College. As a consulting physician he was ever in demand on account of his known medical ability, as well as his modest and gentlemanly treatment of his professional brethren. The physician that held a consultation with Dr. Dunlap was always a wiser man afterward. While the doctor had a large practice, he was a close student. The doctor was elected councilman from his ward in 1834 and served for several years. He was also the physician of the Deaf and Dumb Institution for several years, and was postmaster from 1845 to 1849. All of the duties of the different offices he held he discharged with credit to himself and to the entire satisfaction of the public. He was elected professor of theory and practice in 1849 at the organization of the first medical

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college of our city. He filled the chair with credit to himself and profit to the students. At his death, which occurred in 1862, he was the oldest practitioner in the city. He had been in practice here forty-one years. The only male survivor of the family is Dr. John M. Dunlap, of our city.

DRS. SCUDDER AND COOL.

Dr. Scudder came here in 1821, from Ohio, about the same time Dr. Dunlap came. He was a brother of Caleb Scudder, a cabinet maker, who made the first coffin in this place. I had but a slight acquaintance with the doctor. He was a quiet, unassuming man; he had a good practice, was a Christian gentleman, and had the confidence and respect of the profession and the public. He had just recovered from an attack of the measles when he accepted an invitation to take a sleigh ride with some friends. The exposure brought on an attack of pneumonia from which he never recovered. He died in December, 1829. His death was a loss to the profession and to the community.

Dr. Jonathan Cool came here in August, 1821, when every physician was sick except Dr. Coe. He was a native of New Jersey and a class-mate of the late Judge Blackford. He graduated with the highest honors of his class. He studied medicine and received a diploma at some eastern medical college when quite young. He received an appointment as surgeon in the United States army, and for some time was stationed at the barracks at Newport, Ky. Intemperance wrecked one of the most promising young men in the profession. With all his ability but few would trust him. He was a gentleman, drunk or sober; he never would use any slang, would never tell a falsehood even to obtain a drink. He lived with his mother northeast of the city, where he died in 1840 and sleeps in Greenlawn Cemetery by the side of a devoted and heart-broken mother.

Such was the character, ability and ending of the first five physicians that located in this place. The sickness and fatality

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of 1821 brought this place in such disrepute that it discouraged emigration. I have no knowledge of any other physician coming here to locate until the fall of 1824, when the State offices were removed here from Corydon.

DRS. LILLY, ROSS AND MOTHERSHEAD.

Dr. Wm. H. Lilly was Auditor of State. He came here in the fall of 1824. About the same time Dr. Jones came here from Kentucky. They formed a partnership. The name of the firm was Jones & Lilly. They both were reputable physicians. Jones devoted his whole time to the practice of medicine. Lilly had a deputy who performed the duties of Auditor of State, and he spent most of his time in practicing. Dr. Jones was a large man of fine address and was one of the most successful and popular physicians that ever located here. But intemperance wrecked the firm. Lilly died in 1829. His remains rest in Greenlawn. Dr. Jones' wife returned to Kentucky. The last time I saw Dr. Jones, in 1829, he had no home or friends. He was a perfect bloat, filthy and ragged. Woman's fidelity saved him. Mrs. Jones induced some of her friends to come after the doctor. He was taken back to Kentucky. He reformed and was restored to his family. Some time in 1842 or 1843 I heard from him. He had a lucrative practice and was honored and respected by the community.

In the spring of 1826 Dr. Henry Ross came to this place from the State of Ohio. He was a young man of fine promise. He soon got a fine practice and made friends wherever he went, but he had a holy horror of wolves, panthers and rattlesnakes. As the doctors had to ride into the country ten to fifteen miles, and many of the roads were bridle-paths, it was no unusual thing for a doctor to get lost and have to spend the night in the saddle or up a sapling. Such nights were not the most pleasant. The music was varied between the panthers, wolves, owls and the raccoon fights. Such scenes in a dark and lonely forest were often the lot of the pioneer doctors. Dr. Ross passed a few such nights, when he became disgusted with pioneer life, and, after passing nineteen months here, he returned to Ohio.

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Dr. Charles McDougle came here in 1828 from Ohio. He formed a partnership with his brother-in-law, Dr. Dunlap, who had married McDougle's sister. The firm was one of the ablest, professionally, in the city. Dr. McDougle was well versed in his profession. His appearance made him a marked man in any company. In 1832 he received an appointment of surgeon in the United States army. In that capacity he won an enviable reputation. The last time I saw him was at Pittsburgh Landing. He was medical director for Grant's army. He was then an old man. His hair was as white as the driven snow. He made many inquiries about Indianapolis, the doctors and old citizens. He spoke of the pleasant years that he spent in our city. Near the close of the war he made his home in Washington City. He died some eight years since in Virginia.

Dr. John L. Mothershead was a native of Scott County, Kentucky. He had a college education and graduated at Lexington, Ky., from the Transylvania Medical College. (Sulgrove, in his history of Marion County, states that he graduated at Louisville, Ky.; this is an error.) The doctor came here in 1830, and entered into partnership with Dr Mitchell. He had graduated previous to coming here. The University of Louisville graduated the first class in the spring of 1838. Dr. Mothershead was a modest man, and a careful and painstaking practitioner. It was said that if ever he got into a family he held them against all odds. He soon secured a large and lucrative practice. His first partner was Dr. Mitchell, then Dr. Sanders. Prior to his death he was associated with Dr. Bullard. He died in November, 1854. At his death he had been in the practice longer than any other physician except Dr. Dunlap.

DR. SANDERS AND DR. MEARS.

Dr. John H. Sanders came here in the winter of 1829 and 1830. He was born in Bourbon County, Kentucky, in the year 1791. At that time the country was a wilderness. Many families lived in block houses. He was a student of Dr. Samuel G. Mitchell, at Paris, Ky. In the fall of 1819 he visited Philadelphia to attend his first course in medicine, making the

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journey on horseback. On his return, in 1820, he settled in Millersburg, in the county where he was born. In surgery he took the lead. Soon after his return in 1820 he performed the first amputation of the leg that ever was performed in the neighborhood in which I was born, near Carlisle, Ky. He performed all the surgical operations for Bourbon and the adjoining counties. In 1823 he graduated at Lexington, Ky., at the old Transylvania Medical College. Benjamin Dudley, the greatest lithotomist in the West, if not in the United States, then filled the chair of surgery. In 1824 or 1825 he moved to New Castle, Henry County, Kentucky, where he formed a partnership with Dr. Drenon, one of the leading physicians of that place. He remained there until the winter of 1829 or 1830, when he removed to Indianapolis. In 1831 or 1832 he formed a partnership with Dr. John L. Mothershead. In 1839 he removed to the Ozark Mountains, near Springfield, Mo. In 1841 he returned and soon after formed a partnership with Dr. Parry, of this city. He remained here until his death, which occurred April 4, 1850, on board a steamer on the Mississippi. Dr. Sanders was tall and commanding in his appearance, and was of the highest type of a Christian gentleman. As a husband and father he had no peer. Having a moral character without spot or blemish, he ever commanded a large and lucrative practice. He was true to his friends and as tender as a child. The following occurrence, as related to me by an eye-witness, will exemplify his true character: The doctor and his partner, Dr. Drenon, were attending a young man by the name of Watkins. He was given up to die. After they mounted their horses, as they passed down the lane speaking of the case, Sanders wept like a child. Drenon chided him for his weakness, using very profane language. Sanders said it was a calamity to see such a young man cut down in his youth, and what a sorrow to his parents. In that neighborhood Sanders stock went up and Drenon stock down. His last partner prior to his death was Dr. P. H. Jameson, of this city.

Dr. George W. Mears, a graduate of Jefferson Medical College, came to this State from Philadelphia, and first settled at Vincennes, remaining there two or three years. He removed to this place in February, 1834. Dr. Mears was a Napoleon in

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the practice of medicine. He never surrendered or acknowledged that he was defeated in medical practice. He was thoroughly equipped with an iron constitution and an inflexible will. He faced more midnight storms and traveled over more corduroy roads than the average physician of his day. He commanded a large practice in this and the adjoining counties. He was professor of obstetrics in the first medical college of this city, organized in 1849, and continued professor in that chair during the existence of the college. In 1869 the Indiana Medical College was organized and he was elected to the chair of obstetrics and filled that position until his death, which occurred in 1878 or 1879. Dr. Mears was a first-class practitioner of medicine and obstetrics, and in that department he commanded the confidence of the public and especially of the profession. In 1836 he formed a partnership with Dr. John L. Richmond. In 1838 Dr. Corydon Richmond was associated with them. The firm was Richmond, Mears and Richmond, an able and efficient firm. The partnership continued until the fall of 1840. In 1846 Dr. Mears formed a partnership with Dr. Bullard, which was continued until 1854 or 1855. From that time until his death he had no partner. His death made a void in the profession which was hard to fill. His son, Dr. Ewing Mears, is a leading physician of Philadelphia, and one of the professors of Jefferson Medical College.

DR. RICHMOND'S CAREER.

The name of Dr. J. L. Richmond should be an inspiration for every young man. He was born in the old Bay State on April 5, 1785, a native Yankee. His early life was spent on a farm. In early life his father moved to the State of New York. He never had but twelve days' schooling in his life. His education was obtained by his own efforts and those of his mother. He obtained what books he could with money earned by chopping cord-wood at the Onondago salt-works, then learned his lessons at night by the light of a burning pine-knot, after a hard day's work. The labor of studying and thinking gave him an unusual mental drill for one of his opportunities. When quite a

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young man he joined the Baptist Church, and soon after was ordained as a minister in that church. He was married in his twenty-first year. In June, 1817, in company with his father's family, he started for the far West in wagons. When they came to the head of navigation on the Alleghany River they built a flat-boat and came down the river to near Cincinnati, where he taught school and preached in a Baptist church. The doctor had commenced the study of medicine with some neighboring physician before he left the State of New York. In the spring of 1818 he moved to Newtown, ten miles east of Cincinnati. He graduated in medicine at the Ohio Medical College in the spring of 1822. He practiced medicine at Newtown for several years. In 1824 he performed the Cæsarean operation, the first operation of the kind ever performed west of the mountains, if not in the United States. He was called to see a woman confined with an illegitimate child. She was being treated by a midwife and was very much exhausted. He found a deformed pelvis, and was unable to deliver in the natural way. With a pocket-case of instruments and with the aid of the woman, by candle-light, he operated and saved the woman's life. Soon after he reported the case in the *Cincinnati Journal of Medicine*, and was sharply criticized for performing the operation. How very conservative surgeons were in that day! In 1826 he removed to Cincinnati and remained there, practicing until the year the cholera prevailed in that city, when he was stricken down with the cholera. His health was so impaired that he removed to Pendleton, Ind. He remained there two or three years, when he removed to this city. Here he commenced the practice of medicine, and also preaching for the First Baptist Church. He finally gave up the care of the church and gave his whole time to the practice of medicine. In 1835 or 1836 he entered into partnership with Dr. Mears. His son Corydon Richmond, a graduate of the Ohio Medical College, came here from Pendleton and entered into partnership with Dr. Mears and his father. (Let me here say that Dr. Corydon Richmond, now of Kokomo, is the only surviving doctor of this city or county who was engaged in the profession when I commenced the practice of medicine in April, 1840.) In the fall of 1842, while visiting a patient, he was stricken

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down with paralysis. He was conveyed to his home in a helpless condition, suffering much. His recovery was very doubtful for many weeks. He finally recovered his speech, but never regained the use of his side. Being thus disabled he sold out his property on South Meridian Street, went over to Covington, Fountain County, and made his home with his son-in-law, Albert Henderson, until his death, which occurred in October, 1855. His wife died one year before. He sleeps in the cemetery at Covington, Ind., by the side of his faithful and loving wife.

From 1836 to 1840 there was quite an influx of doctors into this city, men of ability and professional standing. Among the number were Dr. John S. Bobbs, Dr. Charles Parry, Dr. A. A. Ackley, and many others. As this paper covers only the first fifteen years of the early settlement of this city I will leave the history of their lives and work to some other more competent historian. I will only say that the medical men of Indianapolis have always taken a high rank in their profession, and to-day they will compare favorably with those of any city of equal size in the Union as physicians and surgeons.

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SURGICAL TREATMENT FOR THE RELIEF OF NASAL CATARRH.

BY LAFAYETTE F. PAGE, OF INDIANAPOLIS.

For no disease to which flesh is heir have so many remedies been suggested as for the relief of nasal catarrh. Innumerable local and constitutional remedies have been mentioned and more or less strongly advocated by one authority or another, but their very number proclaim their uselessness in a majority of cases. Of all of the special agents of the Pharmacopœia that have been from time to time recommended for nasal catarrh, I question if any one has ever given more than temporary relief, or possessed any decided specific effect in resolving hyperplastic formations.

There is certainly no doubt that there are medicinal remedies invaluable for checking acute inflammations of the nasal mucous membrane, but in my opinion their value is confined to this class of cases, except for temporary relief.

While the nose and throat have always been a field of experiment for all kinds of medicinal agents of the most irritating and injurious kinds, the surgeon, on the other hand, has been very slow until recent years to attempt any form of relief for a disease that has caused so large a per cent. of the suffering of humanity. The appeals for relief that come daily from every hand to the physician certainly justify him in trying more potent remedies than those afforded by the materia medica. In attempting to discuss surgical treatment for the relief of nasal catarrh, I shall be compelled to enter somewhat into the causation of the disease as it has presented itself to me in its various forms, as well as noting some of its results, in order to emphasize the importance of the treatment. In

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order first to know what surgical procedure, if any, is necessary, one must be able to recognize disease of the nasal passages, to understand their normal functions, as well as their perverted ones. This experience can be acquired only by patience and practice with the nasal speculum and rhinoscopic mirror.

We will find the catarrhal disease presenting itself in every form and stage, from simple persistent hyperæmia of the mucous membrane, to that form where all of the special structures and functions of the nose are destroyed. We have all of the signs of nasal obstruction and pressure irritation in varying degrees. Each case presents an individual study in itself. A good light from a laryngeal reflector, a nasal speculum and one or two probes, are all that is needed for an examination. In the majority of cases that present themselves for treatment, we see upon dilating and illuminating the nostril, one or both sides obstructed. In the lower part we observe standing out from the external wall, the inferior turbinate body. According to its degree of turgidity we can see to a greater or less distance along the inferior meatus, but frequently the swelling is so great that this channel is completely blocked. Although this turgidity is scarcely to be considered pathological, it requires definite treatment as a nasal obstruction. Before any surgical operation is commenced, to relieve this turgesence, a few days of spraying with some alkaline solution and oil of vaseline will reduce the swelling and allay the irritation. I think that such treatment is of only temporary benefit in chronic rhinitis, for in my observation the tendency of all these cases is in the direction of hyperplastic rhinitis, with all its accompanying evil results. Surgery has afforded us valuable means for the relief of this condition in the galvano cautery, the wire snare, and various chemical agents. The preference is given among the majority of operators to the electro cautery for removing hypertrophy and turgesence of the anterior portion of the turbinates and septum. This method seems to me to have many advantages over the chemical caustics and the snare. It is easy of application, it is less painful, and the destruction of tissue can be limited to the desired amount. There are two important ends

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to be attained in the use of the cautery, the reduction of the superficial layers of the mucous membrane by a slough, and the formation of inflammatory adhesions to the periosteum. Perhaps the cautery accomplishes even more than this, in destroying some of the smaller blood vessels, thus diminishing the blood supply. Before the operation is commenced, the parts should be thoroughly cocainized with a ten or twenty per cent. solution of cocaine. This contracts the tissues and facilitates the operation. Then the cautery point, heated to a cherry red, should be drawn along the inferior margin of the turbinate body, making a linear incision to a depth to be governed by the thickness of the hypertrophy. It is often necessary to repeat this operation several times before a case of long standing can be thoroughly reduced. The subsequent treatment consists in thorough cleansing and spraying with oil. This should be done two or three times daily by the patient. In a great number of cases, the upper turbinate body is found to be hypertrophied and pressing on the septum, producing very unpleasant symptoms in the brain and especially about the eyes, causing disturbances of vision. This is an important region that is often overlooked in the treatment, and I have found it to be a most fruitful source of headaches, neuralgias, and frontal fullness often complained of by the patient. Some authors warn us to beware of this region in the use of the cautery, but I have not hesitated to invade it with the drill, the snare or the cautery, and my experience has been most satisfactory. I believe that pressure irritation should be relieved, in whatever region of the nose it is found, and with the instrument that is suggested by the ingenuity of the operator. In every case in which I have succeeded in accomplishing this result satisfactorily to myself, I have also had a grateful patient. The same results that we accomplish on the anterior portion of the turbinates and septum with the galvano cautery are claimed by some operators with chromic acid, the London paste, glacial acetic acid, nitric acid, etc. Bosworth gives decided preference to chromic acid, and gives as one important reason, that the electro cautery batteries are unreliable. He should equip himself with one of our own Wright's

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batteries, manufactured in this city, and unreliableness would cease to be an objection.

After removing the obstructions from the anterior portion of the nasal cavities, the patient often experiences the greatest relief and satisfaction from the treatment, but a most important part, and the most difficult part, to both patient and operator, yet remains, in removing the obstructions from the posterior ends of the turbinates. For the examination and operation in this region, the rhinoscopic mirror, and in the majority of cases a palate retractor, will be necessary. There are but very few who will not tolerate the palate retractor with the use of cocaine and gentle manipulation. Often I have succeeded in operating in the post nasal space, on patients troubled with excessive flow of saliva, by administering 1-100 grain of atropia an hour before the operation, while without it they could not tolerate the retractor. Where the hypertrophies in this region are large and projecting, I prefer the snare as being the quickest and most feasible method of removal. I use Wright's snare, with No. 2 piano wire, it being stiff and elastic enough to be slipped over the growth. When this operation is done slowly we are rarely troubled with much hemorrhage. If the hypertrophy be small on the turbinates, and spread over the septum, the cautery is decidedly preferable for removing it. When one becomes sufficiently skilled in this operation, all of the patches of hypertrophy can be cleanly removed without danger to the eustachian tubes and without difficulty. This operation affords the greatest relief in stopping the unpleasant discharges from the post nasal space.

I desire to add here my observations as to the most frequent cause of hypertrophic catarrh. In at least 90 per cent. of the cases which I have examined, I have found deviations of the septum, with bony ridges and spurs, and I believe it is agreed by the greatest number of rhinologists that the consequent stenosis is the most frequent cause of the hypertrophic changes. The surgical treatment of this disease will include the operations for the correction of these deviations, but I shall have to discuss these briefly. I think that Adams' operation

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for refracturing the septum and supporting it in position by intra-nasal splints rarely results in any very brilliant results. These can be effectually relieved by the removal of the obstructing portion of the septum by means of a nasal saw, or by a circular trephine, driven by an electro motor. Lennox Brown says: "I know of no innovation in modern rhinological practice for the relief of hard nasal obstructions, to which I am so much indebted as to the Curtis' trephine drills." Since I procured an electro motor my experience with the trephine in removing bony ridges, spurs and portions of deflected septums has been highly satisfactory, so much so that I have almost discarded the saw. There is certainly no instrument that can take the place of the burr drill in relieving pressure of the upper turbinates and the septum. The operation of removing bony spurs and ridges with the trephine is attended with so little pain and danger to the patient that I never dismiss a catarrhal case with any appreciable obstruction of this kind, for if I do I always expect him to return in a few months with a renewal of the old symptoms.

To review the surgical treatment for the relief of nasal catarrh: I believe the primary object, in short, should be the destruction of nasal neoplasms wherever occurring, the correction of deformed septums as nearly as possible, and the removal of all pressure obstructing the free circulation, and drainage. By the judicious use of the surgical means which I have described, the rhinologist is in a position to attain excellent and often brilliant results. It should be kept in mind that there is an important function in every structure of the body, notwithstanding the fact that it can be removed easily and without fatal consequences, and it should be our object to cure the disease in question with physiological facts kept well in view. Yet, as some author says, we ought, in nasal surgery, to remember Carlyle's definition of dirt—"matter out of place"—and any proliferation of tissue should be looked upon as dirt and removed.

Case 1—Miss G., aged twenty-seven, living on Central Avenue in this city, a teacher in the public schools, consulted me in June, 1891, on account of nasal catarrh, dry throat in the morning, fatigue of voice after talking, paroxysmal cough,

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headache, general anæmia. I found the middle turbinates on both sides hypertrophied, paresis of the soft palate, and the mucous membrane of the larynx congested and thickened. The electro cautery was used to remove the hypertrophy from the anterior turbinates, and the snare and cautery used in the post nasal region. I used for cleansing, Seiler's anti-septic solution and oil of vaseline with a little menthol for spraying. All of the symptoms of catarrh disappeared, the voice does not fatigue, she is not anæmic any more, and has gained twenty pounds.

Case 2—Mr. R., aged twenty-three, from Washington, Ind., consulted me in October, 1890, on account of general nasal discomfort, and severe headache, from which he had suffered for several years. Ten years previous he had received a severe injury to the nose. I found complete obstruction of the left nostril, by reason of a sigmoid deviation of a highly thickened septum in the right nostril, partially occluded by hypertrophy of the inferior turbinate. A portion of the deviated septum, on the left side, was removed with the saw, making the passage free, and the right side was treated with the cautery. There was complete relief from the severe headaches, and all of the catarrhal symptoms subsided, with an increased weight in six months from 130 to 160 pounds.

Case 3—Miss D., of St. Joe, Ill., aged twenty-one, consulted me in June of last year for nasal obstruction and catarrhal deafness. I found both nostrils obstructed; the left side by a large bony ridge, and the right by hypertrophied turbinates and a small spur. She could not hear conversation at all, nor the tick of a watch placed against her ear. Discharges from the post nasal space were very copious, with chronic pharyngeal inflammation. Deafness had existed for three years. The bony ridge and spur were removed with the trephine drill, and the hypertrophy was removed with the electro cautery. The improvement in the hearing was immediate from the removal of the bony ridge and spur, and now her hearing distance is about normal with complete relief from the other catarrhal symptoms.

Case 4—Mr. G., of Nashville, Tennessee, aged forty-three, a minister, consulted me in May, on account of the loss of his

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voice and other catarrhal symptoms. I found a spur on the right side and a general hypertrophic thickening of the left side of the septum. I removed the spur with the trephine and the hypertrophy with the cautery. I also removed some granulations from the pharynx with the cautery. Since his return to Nashville, he has written me, "Since you took me in hand I have been enjoying an amount of comfort such as I had not known for years, and shall ever feel sincerely grateful to you for it. My voice is in perfect condition."

Case 5—Mr. S., aged twenty-eight, a druggist from St. Joe, Ill., consulted me in April on account of nasal catarrh, a chronic suppurative otitis media of the right ear, impaired vision and general bad health. He had received an injury to his nose while at school, and dated his catarrhal symptoms from that event. Anterior rhinoscopic examination revealed an ecchondrosis of the triangular cartilage, on the right side, with evidences of an injury to the septum, producing slight stenosis of the left side, with considerable turgesence of the upper turbinates. On the left side, the upper turbinate was pressing against the septum, causing intense irritation around the point of pressure. Cocaine failed to separate the parts, and the pressure was evidently bony. Posterior rhinoscopic examination revealed enormous hypertrophy of the lower turbinate. The pharynx was dry and glazed in appearance, and there was a chronic inflammation of the pharyngeal mucous membrane, with large discharges of thickened mucous. His weight at this time was 130 pounds. I commenced the treatment by spraying the nose and throat with Seiler's antiseptic solution and oil of vaseline. After five days, I made a linear incision on the right middle turbinate with the electro cautery knife, and this was repeated at intervals of from eight to ten days on the turgescent portions of the turbinates and septum. I then removed the ecchondrosis with the trephine, and subsequently relieved the pressure of the left upper turbinate and septum with a burr drill. I used the snare for removing the large hypertrophies on the posterior end of the turbinates, and the cautery for reducing the thickened septum. After having the abnormalities of the nose rectified, improvement of all the symptoms began at once. Three weeks after

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the ecchondrosis was removed from the right nostril, the right ear ceased to discharge, for the first time in two years, and has not returned during the six months since the treatment. He says that the discharges from the nose and throat have entirely subsided, and that his weight has increased from 130 to 150 pounds, with improvement in general health in every way.

I have cited these cases to show the results of the surgical treatment of nasal catarrh, and I believe the same good results could not have been attained by any medical treatment.

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TWO CASES OF LAMINECTOMY.

BY H. O. PANTZER, M. D., OF INDIANAPOLIS.

Case 1—J. R. Alsatian, fireman, aged forty years. Four years and a half ago the patient was forced to jump thirty-five feet from the roof of a burning house. He landed on both feet and fell backward and to the right, remaining conscious until he was carried across the street, when his senses failed him for a few minutes. He had a tingling sensation in the spine and in both limbs continuing several hours with varying intensity, most severe and lasting in the right limb.

The patient was first seen by Dr. W. E. Jeffries, and then by the family attendant, Dr. Guido Bell, who has treated him intermittingly since, and to whom I am indebted for the case and the supervision of the following history.

The first day the patient was very restless and hard to keep in bed. Once he eluded his attendant and walked across the room. He voided urine and fæces voluntarily, without pain or admixture of blood. He had great pain in his spine, markedly in the lumbar region. A severe pain in both hips and inability to walk suggested a lesion about the hip joint. He had much thirst during the first twenty-four hours. On the second day movement of his body elicited intense "whirling" pain about the upper lumbar vertebræ. Light rubbing relieved this for a time. This pain was constantly present for about a year. The patient rallied slowly, being able to walk only with difficulty, and with pain in his back after several weeks. Three months after injury a severe coccygodynia arose, followed by a swelling like a bruise at the lower end of the spine. This pointed like an abscess, but finally disappeared, without opening, under soft soap anointment. Coccygodynia was present afterward

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whenever the patient got up after sitting awhile. His right limb was noticed to be numb, cold and weak, and was dragged in walking. For awhile he suffered nausea and spit blood. Later this ceased, and he passed blood from the bowels.

I first saw the patient two years after the accident, being consulted by Dr. Bell. The patient suffered acute pain in the coccygeal region. The sacro-coccygeal joint was found tender to the touch, and painful on passive motion. The coccyx was rigidly drawn to the right side. Pressure elicited pain and tenderness in a spot covered by a half-dollar over the upper lumbar vertebræ. An examination under chloroform showed deflection of coccyx relieved, and no evidence of disease about the pelvis or rectum. The dilatation of the sphincter ani muscle gave permanent relief from the coccygeal pain. No more hemorrhage from the rectum.

Ever since the accident the patient felt unsettled and restless, and seemed changed in his nature. His semblance to health prevailed on his friends to discredit his complaints of suffering and unfitness for work. He was repeatedly induced to take up light work, such as tower watcher and telephone attendant, without ability to endure. He was much afflicted with malaria, and had one attack of grip. He had repeated attacks of weakness in the knee, and an increase of motor (extensor and adductor) paralysis of the right limb, being unable to bear the weight of his body on this limb. This aggravation of symptoms commonly arose in the springtime. At first it lasted a few weeks at a time; last year about four weeks and this year has lasted upward of three months uninterruptedly. In walking, the patient employed at first a cane; later, crutches were necessary. Intense occipital pain and pressure, often reaching forward to the right supra-orbital region and including the right ear existed frequently. He often became confused and dazed; this was attended by burning of the eyes and difficulty in articulation. Recently these symptoms increased and he was irritable, querulous, and unjust. Severe pain and hyperæsthesia in the right inguinal region, at times accompanied with difficulty in breathing and nausea. Within the last year the right arm steadily grew weak, cold, and numb, and its painfulness interfered with sleep. *Petit mal* developed,

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starting with a peculiar sensation in the lumber region. Usually the patient had time to call his wife before unconsiousness supervened. No twitching in these attacks. Pain in the right hip and limb, and attended with a prickling sensation, was constantly present though varying in degree The right heel was hypersensitive. The patient was painfully sensitive to the concussion of a door slammed or of a heavy step crossing the room; "it would go right up the back." After retiring at night the right leg often jerked, continuing for an hour. Repeatedly the muscles of the back and abdomen participated. The sexual function remained unimpaired throughout; he effected fecundation twice since the injury. For awhile the sexual appetite was increased. Frequently, even when at his best, after sitting quietly for awhile, on attempting to get up the patient found himself without the use of the right limb for a period of five minutes; "it felt not like numbness nor like sleeping."

For awhile the patient felt the muscles of the limb were too short, or as if they were clothed in wet hose; he never had the sensation of a cord around the body. Various doctors and remedies were tried in time. Blistering of the spine, hot mineral bathing, electricity, nerve sedatives, etc., were tried without effect. A jacket of plaster of Paris or leather was worn during the last two years and gave him comfort, though no cure.

The patient was referred to me a second time in May, 1892, by Dr. Bell, who suggested the propriety of surgical treatment. The symptoms were steadily increasing, physically and mentally. Crutches were necessary for locomotion; the right limb could not bear the weight of the body, owing to the extensor paralysis; the limb was dragged in walking. While sitting he could not cross the right limb over the left without the aid of his hands. Sitting, the patient is most comfortable in an armchair and resting on his right side and elbow. His sleep is heavy, dreamful and unrefreshing. He takes neither alcohol, tea nor coffee. The appetite is diminished. Pressure on the vertebræ elicits great tenderness over the spine and the articular processes of the second lumbar vertebra, and evokes cries,

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and contraction of the muscles of the spine and the right limb and arm. The tactile sensation in the right limb is blunted, extending anteriorly and posteriorly down to the foot. The head of a pin is felt like a finger. Temperature is less than in the left limb. The difference of the calves is an inch and a fourth in favor of the left limb. The right thigh is correspondingly less in size, the atrophy including the extensors and adductors. In the right limb the patellar reflex is increased, the palmar reflex diminished; both are normal in the left. There is no coccygodynia. The right arm is atrophied, cold, and weak; patient can exercise no grip power. He stammers, pauses, and enunciates with difficulty. The tongue is movable in all directions. There is no facial paralysis. Pupils are unequal; the right is dilated excessively; this remains unchanged during an observation extending over several weeks; this condition was not noted by the former attendants.

Diagnosis.—Fracture of the lamina and the articular processes of the right side of the second lumbar vertebra; compression of the cauda at this point. The *petit mal* and the other cerebral symptoms are regarded reflex to the compression of the cauda. The progressive ascending spinal symptoms are held to be owing to a unilateral ascending myelitis.

The operation was proposed as being alone available after all other measures had failed, and because the condition had become unbearable and was threatening an early end. Doubts about its efficacy were entertained on the long duration of the spinal compression, four years and a half having elapsed since the injury, and owing to the ascending myelitis. Restitution *ad integrum* seemed improbable, if not impossible.

The patient gladly consented to this proposition, and was operated on at my sanitarium on June 15, 1892.

Dr. Bell administered chloroform and Dr. E. C. Reyer assisted. The patient was placed on Edebohls's laparotomy table with the anterior surface of the hips resting on the end of the table, which was raised as in Trendelenburg's posture, the head of the patient on the forward end of the table and the limbs hanging over the lower end. A rubber bag partially filled with water acted as a cushion between the anterior abdominal wall

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and the table. This position gave the greatest convexity possible to the lumbar region and proved of great service in exposing parts. I had experimented with this position and found it tenable without great discomfort or any respiratory embarrassment. An incision six inches in length was made directly over the spines of the lumbar vertebræ. The soft tissues were severed with the scalpel, closely hugging the lateral surfaces of the spinous processes on each side, cutting from above downward to sever the tendinous attachments of the upper muscular layers, and from below upward for cutting the deep layers. This I found practical to save unnecessary mutilation of the soft parts; it is suggested by the anatomy of the parts. The right and left laminæ of the second and third and the right of the fourth and part of the right of the fifth lumbar vertebræ were removed. The right lamina and the articular processes of the second vertebra were found thickened from a longitudinal fracture through these parts. Part of the articular processes required removal. The dura mater was found thickened and adherent in this part, and was torn open in removing the cut fragments of bone. A piece of the dura about a fourth by half an inch was removed. The venous bleeding resulting was temporarily frightful, but easily controlled by a gauze packing left in place a few minutes while the work was continued on the opposite side of the spine. Pulsation of the dura was visible. A slight deflection of the third and fourth lumbar spines revealed that these had been broken and reunited by ligamentous union. The right lamina of the third vertebra was contracted and bulged outward (backward) and the articular processes were thickened. The unilateral removal of the lamina of the fourth and fifth vertebræ was done solely to make ample opening. The experience from operations for the relief of compression of the brain calls for free opening. The analogy between the skull and the spine makes this rule applicable to spinal surgery (Chipault).

Drainage was secured with rubber tubes and a skein of silkworm ligatures on each side of the spines. Silkworm was used for suturing the wound. The wound was covered with sterilized gauze and cotton, held in place by adhesive strips. The anæsthesia in the described position was well borne, the

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operation lasting over two hours. The temperature before the operation was 97° F ; pulse, 62; on leaving the table the temperature was 96 8° F.; pulse, 64. Little nausea and no vomiting followed the anæsthetic. Feeding was resumed on the second day. The considerable oozing of sero-sanguinolent fluid during the next three days required frequent changes of the dressing. The rubber drainage tubes were removed on the second day, the stitches on the seventh day, when the parts were healed, except above and below, where the drain openings still existed.

The temperature during the first week reached 100° F., probably owing to an absorptive fever in consequence of the contusion by the retraction of the tissues during the operation. During the attacks of pain it ran up 0·5° to 1° F. After the first week it was normal or even a few tenths subnormal. The pulse varied between sixty and seventy beats to a minute all the time except during pain, which ran it up ten to twenty beats. The urine was voluntarily and easily voided from the start. A slight irritability of the bladder developed on the second day and lasted two days, during which time the urine was voided at intervals of one to two hours. Otherwise vesical symptoms did not obtain. The bowels moved normally. Numbness in the right limb was less on the morning after the operation. The limb was normally sensitive within another day, and on the fourth day and until three weeks had passed it was hypersensitive to the touch, markedly about the knee joint, on the inner side of the thigh, and the upper half of the outer side of the thigh. The right inguinal region was no longer sensitive to pressure after the ninth day. Great pain in the afflicted side (limb, inguinal region, arm, and occiput) within twenty-four hours after the operation. It was variably present for four days; then it recurred on sundry occasions in single regions, and was quite absent after two weeks. There was pain in both eyes on the fourth day. The pupils were noted to be equal on the sixteenth day, unequal on the twentieth day, and lastingly equal after the twenty-first day. The patient, who is naturally excitable, was restless following the operation and quite hysterical. Morphine, one quarter grain twice daily, was given two days, then bromide of sodium was substituted. No natural

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sleep occurred until after two weeks. On the fifth day the patient was able to cross the right limb over the left without the aid of his hands. The right hand had regained its grip within the first four days. On the twenty-seventh day a leather jacket was applied, and the attempt to sit up and walk was first made, and it succeeded. The right limb bore the weight of the body without strain, and the patient sat up ten minutes. On the next day this attempt was repeated. A tingling sensation in the right knee occurred on standing up. On the twenty-ninth day the patient was up most of the day. On the thirtieth day he walked down a flight of stairs, crossed the street to a barber's shop and returned, without assistance or crutches. One week later the patient was presented to the Indianapolis Surgical Society. Since then he has remained well with one exception. Six months after the operation, incidental to financial grievances and complicated with malaria, the patient developed fever and a delirium of one day's duration. This was unattended by any return of the former symptoms, and may hardly be connected with the former disease.

This recalls an attack of hysterical delirium which he developed on the nineteenth day after the operation. He had clandestinely made a half-hearted attempt to walk and failed. This evoked wild grief and fears. I did not know of this venture, and could not construe the cause of the hysteria; neither could Dr. Bell, whom I called in at this time. Patient did not give me this information until some time after his recovery was assured.

The difficulty and risk of an operation on the spine call for a thorough consideration of its indications. Quite a number of recent writers on this subject, among them authors of standard text-books, condemn all spinal operations without condition. This serves to emphasize the importance of accuracy in diagnosis. Unfortunately, the symptomatology of injury and of disease of the nerve tissues is intricate and variable, and involves great uncertainty in locating the seat and nature of the lesion. It is often quite impossible to discriminate between lesion of the cord following injury, and lesion of its membraneous or osseous envelopment. It is often impossible to determine immediately after an accident causing fracture

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and dislocation of the vertebræ and attended by paraplegia, whether the cord is compressed only, or crushed beyond restitution; much less to make finer distinctions.

The case reported here is illustrative of the difficulty attending diagnostic precision, and affords an uncommonly interesting material for clinical study and practical deduction. I wish briefly only to allude to this here, because belonging more properly to the domain and decision of the neurologist than to the general surgeon. The operation developed the existence of more fractures of bone than previously were diagnosticated. Indeed, before the operation there was little evidence of fracture having occurred. In fact, the right lamina of the second and third lumbar vertebræ, and the spines of the third and fourth, were found to have suffered fracture. This demonstrates the difficulty of recognizing this form of lesion. The heavy muscular coating and the deep seat of the vertebræ serve well to cloud fracture in this locality. No doubt fractures of the vertebræ are a much more frequent accident than commonly accepted, both after force directly and indirectly spent. It is safe to say in a given case, when dislocation, crepitus, undue mobility, etc., are present, that there is a fracture. Hardly may we ever definitely assert in the absence of such symptoms that there is no fracture of the vertebræ.

By the lesson of this case we may feel justified in suspecting many cases of so called traumatic hysteria, traumatic neurasthenia, traumatic lumbago, concussion of the spine, spinal irritation or anæmia, hæmorrhagic pachymeningitis, chronic leptomeningitis, to develop their symptoms on the basis of a vertebral fracture, with or without injury of the membranes, and making pressure on the cord. The presence of deformity, ever so slight, must needs suggest the possibility of its causative relation to the spinal disease, and call for the consideration of surgical measures when other means have failed. The history of many cases shows that a deflection and deformity of the spine have been noted—cases that were unyielding to other treatment, and whose symptomatology suggested a similar pathology as in this case. This condition in individual cases may yield the indication for operative procedure.

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Traumatic lumbago, or railway back, seemed a justifiable diagnosis from the pain in the back, increased on motion, and on transmitted shock; the reflex spasm of the spinal muscles, the rigidity of the vertebral column, following the pain; muscular tenderness in the affected region, and from the absence of apparent fracture of the vertebræ.

A unilateral ascending and descending myelitis, and a peripheral neuritis, in the accepted obscure definition of inflammatory conditions of the cord and nerves, as a development consequent or subsequent to injury, might have been accepted to exist here. Much contained in the current literature under the head of traumatic nervous diseases may be construed to be similar in origin with this case.

Modern pathological researches have clearly settled and defined the separate nature of traumatic insult and inflammatory agent. Barring self-infection, which is rare and ordinarily pertains only to individuals of a weakened and diseased constitution, compression or injury of the cord is not followed by inflammatory action. The writings and laborious investigation of Page, Watson and others have done much to explode the notion, long held and yet not fully abandoned, that nervous tissue marked an exception to the rule by inflaming after injury, irrespective of infection. Compression myelitis is a term still in honor, yet in conflict with rational nomenclature and pathology. Knapp makes a just accusation when he says: "Among the sources of confusion in regard to traumatic nervous affections we must certainly recognize the mistakes in nomenclature, etc."

It is reasonable to say, looking back on the case under consideration, that from *a priori* reasoning, as well as from the immediate and complete resumption of functional activity, there had existed in this case no inflammatory disease, no myelitis, nor peripheral neuritis.

This brings up the consideration of what was the pathology? It is certain a compression of the cauda existed. Did this give rise to an ascending and descending degeneration, or to neurasthenia along certain courses? Was it owing to an irritation, transmitted upward, downward, or toward the periphery? Was it an atrophy, or a functional disturbance by defective

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transmission, or reflex excitation? However the answer may read, it is interesting and important to note that four years and a half had passed from the time of the injury to the date of the operation. It appears from this that an inference on the remedial character of the affliction can not be drawn from the duration of the disease. The ilio-inguinal neuralgia can have meant no neuritis, though clinically it might have been accepted to exist, (Knapp).

The insidious nature and the slow development of the symptoms are commonly indicative of the spinal cord being exempt. Excepting where acute paraplegia, local paralysis, and anæsthesia exist, the cord may be regarded non-injured.

Whether this case tended to death may be questioned, but this seemed probable. The point bears interestingly on the question whether so-called traumatic neurosis can produce death.

The case is interesting by the presence of obstinate cerebral symptoms, which yielded more or less immediately after the operation. They might have been judged to be an independent cerebral affection. They probably were reflexes. It is of interest, by comparison, to quote Starr, in the *American Journal of the Medical Sciences*, July, 1892, who, speaking on the diagnosis of lesions of the cord, says: "In spinal affections we always have the face as a convenient surface with which to make comparisons; and in diseases of the lower region of the cord, to which attention is directed in this paper, we have the arms and trunk as a standard of normal feeling."

The absence of vesical and rectal symptoms indicated that the lower sacral region was free of disease (Starr). The sacral nerves showed increased excitability, expressed in pain, sphincter spasm (constipation), bleeding from the rectum, muscular rigidity, pain (coccygodynia), and increased sexual appetite. The hemorrhages, in the absence of rectal disease, were owing, probably, to vaso-motor reflexes. The motor and sensory disturbances pointed to the upper lumbar regions being the seat of the trouble (Starr).

Knapp (*American Journal of the Medical Sciences*, December, 1892), in an article entitled Traumatic Nervous Affections, reviews this subject in the light of ninety cases observed by him.

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I quote from him: "The chief complaint is of weakness and stiffness in the legs and of pain in the back, the latter being often due to traumatic lumbago. The knee-jerks are somewhat exaggerated and sometimes there is ankle clonus. One or both legs may show some muscular atrophy, usually without electrical changes. There is often some pain in the legs and various perversions of sensibility, but anæsthesia is rare. Disturbances of micturition are not often uncommon; the demand is often imperative, and if it be not immediately gratified there may be a little incontinence; sometimes, too, it is hard to start the stream, or it stops before the bladder is fully emptied. Constipation is common, and sometimes the anal sphincter in moments of imperative need yields involuntarily. In these cases the clinical picture resembles somewhat that of spastic paralysis, and autopsies and experiments on animals have shown the most marked changes in the lateral columns. Cerebral symptoms are absent and everything points to a spinal origin."

Knapp reports four such cases, and says while some writers deny the possibility of such cases, he will critically examine their arguments by a more elaborate study of such cases. my case is interesting in affording a remarkably similar symptomatology, and by the results of the operations justifies conclusions quite opposite to those drawn by Knapp. The symptoms do suggest spinal-cord lesion, and still it did not exist.

The possibility of its purely hysterical nature, psychical origin should be considered yet. The French school will probably at once decide it to be such. This seems hardly justifiable after finding positive evidence of spinal compression. Then, too, the previous plans of treatment (stretching the sphincter under chloroform, plaster of Paris jacket, blistering, etc.) were undertaken with expressed confidence of a cure, and were designed to take psychical effect more than the slim hopes held out to the patient by an operation. He was informed that this might kill or fail of all results, even leaving him worse than before. Even after the symptoms had yielded in great part, but before the patient was allowed to get up, he was told that possibly on the resumption of the upright position all the

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former troubles would return, and, in consequence of the changes in the parts by the operation, greater weakness and worse symptoms might appear. This was done to avert the otherwise crushing despondency after a failure.

To sum up, the lessons of this case would seem to be—

1. To emphasize the obscurity of spinal disease.
2. The uncertainty of ascertaining the nature and regional extent of the lesion.
3. The impossibility of determining beforehand the degree of destruction and its relation to the power of regeneration.
4. The possibility of compression so closely resembling other lesions as to represent them all.
5. The uncertainty of diagnosis where it is coupled with failure of therapeutical effort otherwise should call for the earnest consideration of an operative venture.
6. The position during operation afforded advantages that may induce further adoption of it.

The recovery from the spinal and cerebral symptoms in this case was and remains complete at this writing, thirteen months after operation. A stiffness of the lumbar region is present, and may be owing to an ankylosis resulting from the operation and prolonged splinting. It can only be conducive to support and protect weakened parts. It disables the patient as regards lifting anything heavy when his body is bent forward. The jacket was worn two months after the operation and then dispensed with entirely.

Case 2—W. R. McG., American, fireman, aged forty years. In March, 1890, the patient stood on a burning roof, which suddenly gave way at a height of about thirty feet. He was found standing up, stunned and dazed. He showed great excitement, and, on being taken home, grew hysterical. He was inordinately joyous; claimed to suffer no injury or pain. He reported for duty the next day. Soon it was observed that his memory failed him and that his speech often was incoherent. His limbs twitched, and on getting up he would stagger a little before he could walk. He complained of backache and rheumatic pains in his limbs; was irritable, in contrast to his former calmness and cheerfulness of manner. His speech was muffled and by an effort varying in degree. These symptoms

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were noted by his fellows in the fire department, who tolerated his condition and assumed his duties to enable him, nominally, to be enlisted for duty. Constipation existed before the accident, but was greater after it. He sobbed and cried in his sleep. He scratched his head sore back of the right ear and picked his nose much. He was stupid a great deal of the time; would sit musing and laugh to himself. While walking at times his right knee would yield under him; every time he got wet there would follow pain and weakness in the right limb. In walking, the patient hung forward and to the left. He was cheerful about his condition, thought little about it, and always expressed himself confident that he would get well again. In July, 1891, the patient was knocked over by a hose, and fell with his back on a projecting board. Since then he complained much more of backache, and his limbs pained him, especially the left. Rubbing them would temporarily relieve this pain. He felt much better when sitting down, and was much relieved in the morning after a night's rest. He was off duty since the last accident. In February, 1892, the patient was suddenly seized with a profound stupor. He was dazed, could not talk, nor would he answer to questions. He had great pain in the head and body, and was restless and sleepless. The next day his gait was staggering and his speech more difficult and unintelligible. Two more such attacks occurred within six months. Of late the patient is less excitable. His appetite is always good, digestion perfect. Sexual desire lessened gradually until lately, when impotency prevailed. I saw the patient November 3, 1892, two years and a half after the first accident. The right limb bears the weight of the body unsteadily The right thigh measures nineteen inches and three-quarters, the left thigh twenty inches and a half. The right limb is not full on the inner side like the left. The knee reflexes are diminished, more on the right side. There is no disturbance of sensation to touch, prick of pin, to heat or cold. A blunted sensation only exists in the upper and back part of the right thigh and part of the leg. In standing, the patient always favors the right limb, and in walking he leans and shifts to the left side. In the right limb the extensors and adductors show weakness. There is difficulty in passing urine now and then,

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more so of late. The right hand is less strong than the left. The spine is sensitive to pressure at the lower lumbar vertebræ; the spine of the fourth is deflected three-eighths of an inch to the right side. The dorsal spines are tender and deflected to one side. The right pupil is dilated and stationary; this condition is ascribed to an injury to the eye many years ago, since when it is unchanged.

I saw the patient again December 4th, 1892. The day before he had had three attacks of sudden weakness. In the last attack he was shaving himself, when a cramp of the right arm and hand occurred. He turned around to tell of this, when he sank down in his knees. Consciousness was retained. The speech was limited to saying "Yes" and "No" indistinctly, though he evidently cared to say else. The right limb is perceptibly weaker than before; the right arm is cramped, especially in the little and ring fingers, which, too, are painful. Two doses of bromide of sodium, fifteen grains each, relieved the paralysis of the arm and the speech only. Stupor, or daze, continued worse than before.

The history and the symptoms in this case hardly justified a definite diagnosis. The symptoms probably were of both spinal and cerebral origin. The occurrence of a second accident complicated the interpretation of this case very much. It could not be ascertained whether the deflection in the lumbar spine existed consequent to the first accident. If this had pre-existed to the second accident, it would have been right to assume that the symptoms, at least in part, were owing to an injury of this region. From the history as given, the symptoms had increased since the second fall; a clear description could not be given of the chronological succession of events. The case was perplexing in its reading; it was growing steadily worse. The experience in the previous case, recalling great similarity in the nature of the accident, the circumstances attending it, and the symptomatology, naturally suggested the consideration of an operative recourse. An operation afforded no valid promise. The case every way seemed worse and more obscure than case I. Medical treatment, electricity, stiff jacket, and extension, all had been tried without benefit. The

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patient had been under the treatment of Dr. Wm. B. Fletcher, who regarded the affection of spinal origin.

The case in its obscurity and prognostic gloom, even by an operation, was fully presented to the family. Operation was not advised, though offered, if requested. The case was under advisement three months, when operation was called for.

Operation at my sanitarium on December 20, 1892. Dr. W. J. Browning gave chloroform; Dr. Bell and Dr. Reyer assisted. The position and procedure as in the former case. The spine of the fourth lumbar vertebra was found fractured and united by ligamentous union; its right lamina was thickened and bulging. The laminæ on both sides of the fourth and fifth lumbar vertebræ were removed. Slight dural adesions were found. The dura was opened and nothing indicative of caudal disease was found.

The patient bore chloroform well, and no vomiting followed. The temperature after the operation was 98°; pulse, 94. Feeding was well borne. He answered to questions and described his complaints. He was altogether more restful than the former patient at this stage. At 7 P. M. of the second day hiccough developed, and pain in the interior half of the thighs. At midnight the patient grew restless. He wanted to get up, and was restrained with difficulty. Morphine, one-fourth grain, was given at 2 o'clock, and thirty grains of bromide of sodium half an hour later, with the effect to quiet him. The patient perspired freely and his pulse ran up to 140.

At six o'clock that moring the temperature was 100·2°, pulse, 104. At 11:45 A. M. the patient suddenly stopped breathing for about two minutes (nurse's statement) and limbs twitched, more on the right side. When I saw him shortly afterward his temperature was 101°; pulse, 124; respiration, 30. He was in a stupor from which he could not be roused. The face was drawn to the left. Temperature steadily fell, pulse increased, the respiration increased in frequency and became stertorous. Death occurred at 7 P. M., fifty-five hours after the operation. The wound had been dressed twice, was sweet and free of suppuration, swelling or redness; there was less sero sanguinolent discharge than in the former case.

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A post-mortem examination had to be limited to the seat of the operation and developed the parts free of redness, swelling, or pus. The parts were agglutinated, except where the drainage tubes interfered. The dura and cauda were free of congestion.

It must be regretted that the post-mortem examination did not cover more ground; by the light of it alone might this case have a clear reading. It is likely that diseased conditions higher up on the spine were at fault; and cerebral complications may be accepted to have existed. The final scene must probably be connected with a lesion, an apoplectic seizure, located in the medulla oblongata, and was like in kind to the attacks he had previously suffered. The operation can hardly be accused of more than an exciting cause, added to an explosive condition pre-existing.

194 E. Michigan St.

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THE EARLY RECOGNITION OF MENTAL DISEASE.*

BY H. M. LASH, M. S., M. D., INDIANAPOLIS.

Is insanity on the increase? The number of insane persons certified as such indicates that it is. Asylums everywhere are full, and application is constantly being made. This state of affairs is not confined to this country. It is equally as true in England and on the continent as here. The question of providing accommodation for the multiplying numbers is claiming serious consideration.

It is not the object or purpose of this paper to discuss that matter, nor to undertake to account for the apparent increase. I simply want to present for discussion a few thoughts in regard to mental ailments, and to speak particularly of the advantage to be gained, and the benefit to be derived in their treatment, by early recognizing the very dawnings of the mental change. At this time, the sourse of the impending cerebral mischief may be removed, the calamity averted, and a name saved from the ever-growing, and already too long, list of asylum inmates.

Although difficult to define, it is generally very well understood what the word insanity means, and yet it has seemed to me that the term is too broadly used. One fact must not be forgotten nor overlooked, and that is that insanity, like paralysis and dropsy, is not a disease, but a symptomatic condition. As commonly applied the term may include all variations of mental disturbance; but there is a wide difference between many forms of mental disease and real insanity. Especially is this true in the initial or early stages of this class of troubles, and it is here that diagnostic skill is of great value.

*Read before the Indiana State Medical Society, May 12, 1893.

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The more pronounced types, such as mania and melancholia, are readily determined. The course to be taken with them is plain. Usually they require the environment and care of an asylum. But it is only when the condition is fully developed that such a step is advisable and is taken. All such cases have a history, and that history has its beginning. True, many cases, apparently, have a sudden coming on, but, as a rule, if properly investigated, it will be found that the development has been a gradual one, and further, I think it reasonable to assert that there is, as in other physical ailments, a cause and a starting point In making this assertion, I want to be understood as having reference to cases found in persons having a normally constructed and properly developed brain. The cause may be difficult, even impossible, to find with the present knowledge of brain construction and function; the beginning may be insidious, and the course long concealed. But mental diseases have a beginning, and they grow, gradually increasing in severity, with clearer and better defined manifestations, until, in due time, they terminate in uncontrollable insanity having a permanent and irreparable pathological basis.

In the beginning, persons thus afflicted and with such a history, were not insane. The start is in a mental or nervous perversion, a change—produced in a variety of ways—in the manner of thinking, acting, and being impressed by persons and things. These early changes may be classified as "eccentricities," "freaks" or "cranky notions," but carried a little further and they lead to confirmed delusions, and then a case of insanity is established. As examples: the melancholic begins to brood over a loss or a disappointment; it ends with thoughts confirmed, and the world becomes to him a blank or an enemy. The paranoic feels the sting of opposition, then there comes to him the imagination of persecution; it ends in his stabbing or shooting to death the fancied persecutor. The maniac, with brain excited and aroused to increased activity from the overnutrition of its cortical cells, runs wild in the direction of strongest characteristics, as an ungoverned engine, with too great force of steam, runs to its own destruction.

We have all seen just such cases. We have seen them pass from stage to stage until they have been substantially buried

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in some insane asylum, or had attached to them the odium that these persons have been crazy, because of the too prevalent opionion that a mental disease is a disgrace. Another idea prevails that a mental trouble is one far different from any other disease—so different, in fact, that it must not be considered and treated as other diseases are, except under the most pressing circumstances, and then only by the specialist, or the subject must be placed or confined in some private or public institution. Such views are most erroneous. Every form of mental disturbance has its premonitory signs and symptoms, and they are usually as significant as are the symptoms of any other physical ailment. If early and properly observed and studied, they will as unerringly point to the nature of the brain disease as do the physical signs of other diseases.

Insanity can not be separated from sanity by any distinct or fixed line. And yet there are certain variations in the usual course of conduct, mode of thinking and manner of expression, especially as applied to the individual, that mark its presence. The business man becomes easily disturbed, overanxious, and suffers from insomnia. Little things become magnified and distorted. The ideal becomes the real. Despondency succeeds cheerfulness. Over confidence in one's business capacity and venturesome deals and speculations take the place of caution and careful trading. Radical changes in opinions—particularly concerning religious matters—occur. Great riches and prosperity are within easy reach. These and many similar conditions point to the impending disaster in the cerebral centers. And still it can not be truthfully said that such persons are insane It can, however, be said that in such cases there is a mental perversion, and mental perversion, in the majority of instances, is the direct forerunner of real insanity. This, then, is the state that calls for early recognition, prompt action and suitable care and treatment.

A word as to etiology. Causes are very numerous, but they may be divided into two classes. First, lesions of the brain itself. Second, general diseases and lesions of other organs, which directly or indirectly influence cerebral action. Physical brain lesions may and do produce mental failure. That knowledge, however, outside of those that are inflammatory

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and those coming from injuries, is of but little practical value, for the same lesion will, apparently, be attended by all forms of insanity. We can not, therefore, always reason backward from an effect to a certain, positive cause.

Of the general diseases, acute and chronic, and the lesions and disturbances of the foreign organs, which influence mental operations, there is a long list. The insane state may be induced by many and widely different pathological conditions. Peripheral irritation is a fruitful source. Errors of refraction and accommodation of the eye, are prominent examples. Dr. Stevens, of New York, mentions a number of cases of mania taken from Willard's Asylum and cured by correcting the eye defect. Foreign bodies in the extremities and uterine diseases are given as other examples.

Then we have the insanities of kidney, liver and lung disease; rheumatism, the abuse of the sexual organs, alcoholism and syphilis. The nutrition of the brain cell frequently controls mentality. Alienation may follow either its mal- or hyper nutrition. These conditions depend on digestion and heart action. So there may be insanities from stomach and heart difficulties. I have one patient now who has a variety of delusions from weak heart action, due to organic disease. Another, who is full of wild fancies, spends useless days and sleepless nights because the other extreme in blood supply prevails. Some of these examples may be types of the more advanced stages, but they serve to illustrate the theory of cause, and to show the extent to which the brain may be influenced by the ailments of other organs.

To no one else comes the opportunity of seeing mental disease in its first stage as comes to the general practitioner. The trusted family physician is the first one consulted. He is expected to be able to decide as to what is wrong and what is to be done. On him there rests a grave responsibility. If he correctly interprets and intelligently comprehends the nature of his case, it may never go beyond its early stage, and if it ends there, it is because it has been studied and recognized in its most curable form.

In the treatment, therapeutical agents *per se* are of very

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little value. There is no specific remedy for the cure of mental disease. Success lies in getting at the root of the mischief and giving that attention. All errors, special and general, wherever found, such as improper refraction, the irritating reflexes, abnormal action of other organs, systematic derangements, excesses, irregular lines of conduct, and everything which tends to cause over excitation of the nerve centers, must be looked for, corrected, and, so far as possible, removed. Properly directed efforts alone, if sufficiently early put to work, in some one or more of these channels, will clear up many a beclouded mind and effectually forestall any further cerebral mischief.

The first duty is—

> "That we find out the cause of this effect,
> Or rather say, the cause of this defect,
> For this effect defective, comes by cause."

And having accomplished that, the remedy is easier of application.

But sometimes these strange mental manifestations can not be traced to a satisfactory cause. This, however, does not disprove the theory. It only means that one can not be found. The recourse, then, is to the psychical—that vast region of speculation. But purely psychical manifestations are not without their import, and are frequently quite as suggestive as are the physical. The assertions previously made in regard to early recognition and prompt attention, are just as applicable in this, though not so well understood, class. Metamorphoses of the brain tissue itself may be going on, which, if let alone, finally become uncontrollable and destructive. Alertness in discovering them marks the turning point toward repair and restoration, provided such advantage is taken of it as is helpful to clear thinking and sound reasoning. Entire change of scenes and surroundings, freedom from perplexing cares and the annoyances incident to contact with objectionable persons, healthful exercise and amusement, acceptable employment, congenial society, strict attention to dietetics and plenty of good sleep are the agents and means that contribute to the process of restoration.

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In considering this subject, I have refrained from any discussion of the pathology of insanity except in so far as it pertains to its very early state.

The chronic and confirmed cases do not admit of the success of the treatment applicable and effective to those in the acute stage. Then it is more a matter of care and protection than anything else. But, in the incipient cases, there is much hope of maintaining that fine relation of mind to matter that preserves "judgment's accurate balance," even after its overthrow has been seriously threatened.

In this paper I have aimed to bring out the following points:

1. Not all mental diseases are insanities, but many are rather mental perversions, easily susceptible of cure if early recognized and handled and treated as are other physical diseases.

2. Insanity is a symptomatic condition, having back of it a physical pathological disturbance or lesion which may be either in the brain itself or in some remote region.

3. The correcting of the disturbance or the controlling of the lesion which is acting, directly or indirectly, as an exciting or stimulating cause, will alone, in a vast number of cases, dispel the gloom and clear up the darkened mental sky.

4. To the general practitioner the subject of mental disease is of the highest importance, for upon him rests the responsibility of that timely recognition of its presence, and that prompt action in resisting its further progress that may save consequences so often far reaching and disastrous.

5. The meeting with troubles of this class of disorders can be no more avoided than can those of any other. The appeal for relief comes with far more touching emphasis, for without reason and judgment, the man is as nothing.

DISCUSSION.

Dr. Edwin Walker, of Evansville. Mr. President, if I had an hour or two I would like to talk upon this subject, but without detaining the Society I don't believe I can make myself clearly understood. It seems to me the doctor has fallen into what I consider an error. I protested against it yesterday,

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when the proposition was advanced, attributing nervous diseases to peripheral irritation, that is, that peripheral irritation is of itself an exciting cause of disease. These observations of Dr. Stevens and others have been in the line of the continuation of some theories that really date back to the early part of this century that were given prominence to by Brown-Sequard, and if there is any foolish thing in medicine, anything that is more erroneous than that, I don't know what it is. Now these cases that come to us where the trouble is attributed to peripheral irritation, it would be better to attribute the trouble to mental strain. There is another thing that I am very suspicious about, as the cause of disease primarily. In all these instances this explanation leads to overlooking the true nature of the case. We have lacceration of the perineum, and we find with that certain mental alienation. I find a case of that kind, I repair the lacceration and the woman recovers; but I do not think that is any proof at all that just the operation relieved her. It was a fact that the lacceration was so great that her locomotion was greatly interfered with and she had been leading a sedentary life; she had constipation and intestinal and stomach dispepsia, which was relieved by her exercise afterwards. Now in these cases I think what we should look for, and what we will find more frequently the cause of these nervous troubles, are some errors about the digestive apparatus, and that is too large a subject to discuss in five minutes. I think we are being led away by this talk about peripheral irritation. It is never, in my opinion, the cause of insanity or the cause of any other systematic disease. It may be an aggravation and it may be proper to correct it, but to look on it as the sole cause of the disease will lead us into error. If you will take your patient as a whole and treat him for his nervous system with every organ considered and examined carefully to see what is wrong with that individual and why he has these things, you will be able to find out more than peripheral irritation. I have never yet seen a nervous disease that I could not find out some other cause for besides peripheral irritation. I have never yet seen a case that was relieved by the operation to relieve peripheral irritation that was permanently cured unless some other treatment was given afterwards. I believe in the cases of these

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patients who have uterine diseases, lacceration of the perineum and what not, that are treated for that and cured, that it is the rest they get at the time, the improved health they get, in other words. They are allowed to go out and get more fresh air and exercise, and in the treatment of nervous diseases more than ever, I think, we must consider every part of our anatomy together; to go off on one theory would lead us into error. I do not want to be understood as saying the doctor does that; I don't think he does; I know he don't; I agree with most of his paper. I think the point he has made of the necessity for us to think about these diseases, and study the conditions that go before insanity, is happily taken; but I do think he has given undue prominence to that one part. The balance of his paper I enjoyed very much.

DR. LASH, of Indianapolis (closing). Mr. President, I only want to say that the question of peripheral irritation is only a small part of my paper. I thank Dr. Walker for his criticism; it is just and fair. The strength of the paper is in calling out the fact that we must not dismiss a case of mental disease just because the mental system is disturbed. That is entitled to our consideration, our investigation and our care as much as any other condition; and, usually, we must remember there is a cause for it. That we may not find it, does not disprove the theory that there is a cause lying somewhere for that trouble. It may be in the brain itself; it may be a lesion of the brain itself; it may not be. It may be in the disturbance of some foreign or distant organ, as he himself suggested, in the stomach. I think there is a great deal in that. I did not give very much prominence to the question of peripheral irritation; but the conclusions of Stevens and others are so strong that we can not overlook them. Possibly therein lies a cause, and, if so, the thing to do is to correct that. The point is to find out the cause of it, and to find that cause in the very beginning of it.

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REPORT OF A CASE OF CHOLECYSTOTOMY IN A WOMAN IN THE THIRD MONTH OF PREGNANCY—RECOVERY.

BY L. J. WILLIEN, M. D., TERRE HAUTE, IND.

Mrs. K. G., of Mattoon, Ill., aged thirty-four, tall and well-developed, with an average weight of one hundred and fifty pounds when in good health. She is of Irish-American extraction. Hereditary antecedents are excellent; her habits regular. She is married, and the mother of four children. About January 1, 1892, she was seized with an attack of bilious colic for the first time. She described the pains as being of a very acute character, beginning in the epigastric regions, darting through the liver, then upward into the right shoulder blade. The attacks ceased almost as quickly as they came, and lasted from fifteen to thirty minutes. During the paroxysm she vomited bile and mucous; her body and extremities became frigid and bathed with a clammy perspiration. She presented a pinched appearance, the eyes receded into their orbits, tossing in her couch with knees drawn to her chin, presented a most painful portrait. An icteric color of the skin was the immediate sequence of these paroxysms. The heart's action became slow and feeble, so much so that it only beat fifty-eight times a minute. The stomach refused to assimilate food, the bowels became constipated, and the stools changed their color from that of normal to that of white clay. The urine was scant and colored with bile. Later on ague-like paroxysms, such as rigors, fever and perspiration, with intensified jaundice; the attacks became more frequent and of longer duration. She grew more feeble and lost flesh rapidly, and was mentally depressed.

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All therapeutical agents having failed to give relief, her physician, Dr. Anderson, of Mattoon, Ill, informed her of the gravity of her condition. She called at my office in Terre Haute, about August 1, 1892. The most careful examination did not reveal any biliary calculi, and yet jaundice kept on becoming worse. The menstrual flow has been suppressed since the first day of June, all indications pointing to pregnancy. To keep her under observation for a few days, I advised her to enter St. Anthony's Hospital, in Terre Haute, where she took a private room. While there she had, from the 10th to the 22d of August, four attacks; these were so severe that a repetition of many such would to a certainty cause death. Being informed that an operation was a *dernier ressort*, she readily submitted to the proposition rather than suffer any longer. She returned home to make necessary arrangements as to the care of her children, etc., and came back on the 6th day of September, 1892.

On the 8th day of September, 1892, at 10 A. M., the operation was performed. Chloroform was the anesthetic used, and she bore it well, excepting slight nausea toward the end of the operation. To reach the gall-bladder I made an incision parallel to the external border of the rectus abdominis muscle, from the borders of the liver downward, about four and one-half inches in length. The peritoneum was seized with a small pair of forceps, and clipped open with scissors; this membrane was very vascular, and firmly adherent to the liver, gall-bladder and omentum. This retarded the progress of the operation, because the adhesions had to be carefully broken up with the finger. The liver was enlarged, and this served to render the work more tedious. After reaching the gall-bladder, I also had to relieve it from its adhesions with the liver and its adnexa. It was then brought to view; its walls were colorless, indurated and distended with an albuminoid liquid; this I removed with an aspirating needle, about two ounces in all. I slit open the sac, and in reaching upward, I felt a number of calculi impacted in both the hepatic and ductus comminus choledochus; these were dislodged and then taken out. There were nineteen in all, varying in size and weight, fifty-six grains being the weight of the largest one; the whole number

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weighed 106½ grains. Having washed out the biliary vesicle with a seventy-five per cent. solution of peroxide of hydrogen, I stitched the walls of the bladder to the peritoneum with an interrupted catgut suture, leaving a rubber tube for drainage. The incision was closed with first stitching the peritoneum with catgut, second, by uniting the muscular layers, fascia and skin with five interrupted silk sutures. The parts were dusted with aristol, iodoform gauze and aseptic cotton, maintained in place by a roller bandage, constituted the toilet of the abdomen. She was put to bed, and heated blankets applied to her. Narcosis gradually passed off, she vomited bile copiously and complained of severe pains. Duration of the operation, including the beginning of narcosis, one hour.

At 5 P. M. temp. 99°, pulse 80; very sick at the stomach, and pains in the region of the wound, and very feeble pulse.

℞. Codein, half a grain; repeat every hour until relief.

℞. Metric granules, digitalin, strychnia sulph. and nitroglycerine each, one granule every hour; champagne on ice, and sips of lemonade for drink

September 9 (second day), 9 A. M. Rested fairly well during the night, has ceased vomiting, and says she feels much relieved. Temp. 99°, pulse 82, and regular. Metric granules to be continued, but at longer intervals.

September 10 (third day), 7:30 A. M. Had spasmodic attacks of colic during the night, and intestinal flatulence and thirst, the bowels are constipated. I removed the tube from the wound and washed out the parts with a one-fifth per cent. of peroxide of hydrogen solution ℞. Calomel, ⅛ grain; magnesiæ sulph., 60 grains; ext. hyoscyami, ½ grain. Mix, and repeat every three hours until effect. Diet, kumysgen, beef tea and champague; also continue metric granules.

September 11th (fourth day), 9 A. M. Slept well, bowels moved copiously and the stools are very bilious; her complexion is clearing up, and she feels cheerful. Temp. 98.6°, pulse 80.

From this time on our patient made a rapid and uninterrupted recovery. The sutures were removed on the eighth day, all the parts being well united excepting the biliary fistula, which continued seeping for several weeks afterwards. With the aid of the tonics and a good nutritious diet she

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gained in flesh and strength very rapidly, and left the hospital cured on the second day of October, 1892. On the first day of March, 1893, I was informed that our patient had given birth to a healthy little daughter, and both mother and child were doing well.

Remarks.—The fistulous tract closed about six weeks after the operation; the dressing was at no time tainted with bile; this is evidence that the function of the gall-bladder is arrested. An early operation should be insisted upon by all means, when therapeutical agents have failed to give relief; to discourage surgical interference is certainly a cause for severe and just criticism. Expectant treatment is a matter of the past, and it is easier to cut over a distended gall-bladder than to do cœliotomy for washing out its contents when they have emptied into the abdomen, for such is then nothing more than an ante-mortem examination. It is not my purpose to make or consider this an extraordinary case, but simply to bring out the practical points, in order to credit the subject for discussion.

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APPENDICITIS.

BY L. H. DUNNING, M. D., OF INDIANAPOLIS, IND.

The study of appendicitis must be of interest alike to the physician and the surgeon. There is a common ground here upon which they meet and both profit by consultation. The milder forms of appendicitis are, as a rule, seen only by the physician. In them the tendency is toward recovery. That is an astounding fact revealed by the 300 autopsies of Tafft, in which the subjects were taken indiscriminately, and in which thirty-six per cent. showed evidences of having had disease of the appendix vermiformis. Mild attacks of appendicitis are exceedingly common and are often overlooked. The morbid process may, and usually does, begin as a catarrhal inflammation, and may be due to foecal concretions, the presence of a foreign body, the extension of the disease from contiguous structures, to strangulation of the appendix, stricture of its lumen, either congenital or acquired, or from tuberculosis, and lastly, as a sequel of typhoid fever. In a few instances the disease has been known to proceed from the serous coat inward. Mynters' explanation of the method of the formation of the concretions found in the appendix is quite satisfactory. He says: "Catarrh of the coecum with dilatation, I consider quite frequent, and it is probably followed with catarrh and dilatation of the appendix and its opening into the coecum, Gerlach's valve, so that the contents of the bowels enter with greater ease. The appendix has a relatively absorbent surface so that the fluid is absorbed while the solid parts are left and form concrements, which are again the mechanical cause of inflammation and relapse."

In these cases the inflammation may end in resolution without a general involvment of all the tissues of the appendix or

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deep ulcerations. On the other hand, deep ulcerations may occur and perforation may take place. In the latter condition the appendix vermiformis is much more frequently affected than the coecum.

According to Weis' statistics in 100 autopsies of subjects dying of peritylitic abscess, the coecum was perforated in four cases, against eighty-four of perforation of the appendix. In three cases the coecum and the appendix were both inflamed, but not perforated; in two cases the perforation took place from without inward. In these two instances the perforation was in the coecum. In McBurney's twenty-four cases of early operation he found concretions in eight cases, these included the one case in which four bird shots were found in the appendix. In only one of Stimson's thirteen cases was there a concretion. The latter author thinks concretions play but a small part in the causation of the disease, yet McBurney's cases show that in 33⅓ per cent. of instances such concretions existed. Tuberculosis is sometimes a cause of the disease, especially of the ulcerative form, and may lead to perforation of the appendix. Fitz believes that in some of the fatal cases of perforation of the intestines in typhoid fever the perforation occurs through the appendix vermiformis. When torsion of the appendix takes place gangrene is liable to, and frequently does, follow. This gangrene may involve all the tissues of the appendix or be limited to a portion of it. In a small per cent. of cases the inflammation begins upon the serous surface of the appendix or ceocum and extends inwards. Stimson found stricture of the appendix in three cases characterized by recurrent attacks, two of which strictures were due to inflammation and one was thought to be congenital.

Various classifications of the disease have been made, all of which are more or less imperfect. If one must have a classification, probably Oslers' is as good as any. He recognizes three forms, viz., catarrhal, ulcerative and perforative. The classification, however, will be confusing if we do not remember that the simple catarrhal form, which is by far the most frequent, may result in ulceration and, finally, perforation. Again, this

1 Annual Surgery, April, 1891, p. 227.

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form may result in the formation of a stricture and lead to recurrent attacks. The cases dependent upon tuberculosis show the clearest types of the ulcerative form and those of gangrene, probably of the perforative form, yet they are very rare. The morbid process usually begins as a catarrhal inflammation of the appendix vermiformis. The mucous membrane becomes much thickened and the inflammation extends to the deeper structures, so that the appendix becomes thickened and elongated. It may also become dislocated, and the serous coat becomes involved in the inflammation adherent to some surrounding structure. Now the morbid process may be arrested, resolution take place and the patient speedily recover. This I would denominate a simple or mild case of appendicitis. On the other hand ulceration may occur in the mucosa and gradually become deeper until the appendix is perforated, or the inflammation may extend by contiguity of structure into the deeper tissues until the whole appendix is involved, and from the serous coat the inflammation may spread onwards to surrounding structures. We may then have added to the appendicites a typhitis, a local or a general peritonitis. If the peritonitis be local, adhesions will form, uniting the serous coats of the appendix and intestines, and these to the anterior abdominal wall.

Suppuration of the tissues of the appendix may occur. McBurney found such suppuration in two instances. In these there were small foci of pus within the tissues of the appendix. In neither of these cases were there concretions or perforations. There may or may not be protective adhesions before perforation occurs. When there are no adhesions peritonitis speedily follows such perforations, and death occurs if abdominal section is not quickly done. When adhesions form, the coecum, head of the colon and appendix vermiformis may mass together and all adhere to the anterior abdominal wall. In such cases perforation of the appendix, if it occurs, will be followed by the formation of an abscess, which will point externally. When the mass does not adhere to the abdominal wall the abscess may be completely walled in, being surrounded by inflammatory deposits and adherent intestines. As the abscess develops there will be a more or less movable tumor in

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the inguinal and lower abdominal regions. Fluctuation may be present and readily detected, when the abscess walls are thin, by palpation or by combined manipulation. But when the abscess walls are thick and partly surrounded by intestines this diagnostic sign can not always be elicited; when it can not be, operators are pretty generally agreed that the test needle may be employed. In this last form of abscess rupture may finally take place into the abdominal cavity or into the intestinal canal. In the former case peritonitis rapidly develops, while in the latter recovery is the rule. The latter course is exceptional. Sometimes a fatal termination will be reached before rupture of the abscess in consequence of septicemia.

Another form of abscess should be mentioned. The appendix may pass behind the coecum and colon and then will then be without the peritoneum. Now if perforation takes place a retro-peritoneal abscess will form, which may terminate by the pus passing beneath the foscia and appearing at Pouparts' ligament. In rare instances an abscess may develop, which may be evacuated through the loin or may rupture through the diaphragm into the pleura.

Symptoms.—The symptoms of appendicitis seem to be quite uniform at the onset. There are usually collicky pains which may or may not be located. At the end of a few hours the pain is localized. The McBurney point is more or less distinct. It is situated one and one-half or two inches inside of the anterior superior spinous process, in a line drawn from the umbilicus. This is found on superficial or deep pressure. Usually at the onset there is constipation, though in one of my cases there was diarrhea. There is seldom tympanites at the beginning There is not usually any marked elevation of temperature in the mild cases; but in the more severe ones the temperature usually reaches 102 or 103 degrees the second or third day. The pulse is generally accelerated. Sometimes nausea and vomiting are present in the severe cases. In the grave cases the general depression of the patient is greater than the disturbances of pulse and bodily temperature would indicate. In the mild cases the symptoms gradually subside in from thirty-six to forty-eight hours, while in the graver ones they become more pronounced, so that in two or three

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days we have marked evidences of the existence of a serious malady.

Where tympanites appears, it may be unilateral. The pain varies in intensity. In some mild cases being intense and in the grave ones but slight, yet sometimes during the progress of the disease it is prone to be for a time intense. An intense paroxysm of pain coming on the third or fourth day and following a period of quiet is believed to indicate the occurrence of rupture of the appendix. If general peritonitis intervene, the pain will be more or less diffused; otherwise it is more likely after the first few hours to be located in the right inguinal region. Symptoms of obstruction of the bowels may be present and when occurring early in the disease are due to the pressure of the swollen and distended appendix upon the coecum and to impaired movements of the intestines due to inflammatory infiltrations. When these symptoms appear late in the disease, they are of grave import, inasmuch as they usually indicate septic paresis of the intestines. A tumor may or may not appear or it may be present and yet be undetected on account of the rigidity of the abdominal walls and the presence of tympanitis. When present it will generally be found in the right inguinal region. We can readily understand why in some of the grave cases no tumor can be detected, when we remember that the location of the appendix is behind the coecum, and that gangrene and perforation of the appendix have been found to have taken place without any adhesions whatever, either of the appendix or the intestines. Sometimes a tumor may be detected by a digital examination through the rectum when one can not be made out by abdominal palpation. When an abscess has formed there will seldom be difficulty in locating the tumor, though it is not always an easy matter to determine the presence of pus by palpation. Sometimes the aid of the needle will be needed to assist in the diagnosis. In making a diagnosis a knowledge of the symptoms above enumerated is indispensable. The chief things to be remembered and determined are the characteristic history, the tendencies and resistance distinctly localized at the McBurney point, and the appearance of a tumor. It will further aid in the matter of diagnosis if one can obtain a clear history of former attacks.

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These recurring attacks come at varying intervals. At one, two, three years apart, or oftener. McBurney reports one case in which there were twelve within a year, and in one of my cases there were three within four months The prognosis in mild cases is good, in grave ones bad. Fitz places the mortality in all cases at twenty-five per cent. While in Stimson's cases, in those not operated upon, it was fully as great.

Treatment.—Regarding treatment, I will say, I know of no disease calling for the exercise of better judgment than that of Appendicitis. The majority of mild cases will recover under appropriate medical treatment. In grave cases the mortality is great. Much difficulty will be found at the onset in determining whether a given case is a mild or grave one, and upon the physician's decision touching this point the patient's recovery or death may depend. It is the disease above all others in which the physician and surgeon should unite their efforts to cure their patient, first in consultation and if needed in action. The accumulated experience of physicians and surgeons during the last five years most emphatically condemns alike the speedy operation for the removal of the appendix vermiformis in all mild cases, and the strictly medical treatment of grave cases. The mild cases are those in which the signs and symptoms of appendicitis are well marked, yet in which there is an absence of much vomiting, marked tympanites, high temperature, rapid pulse, great prostration, a well marked and growing tumor or obstruction of the bowels This is not given as an imperative rule. Some cases are grave in which these symptoms are absent. In mild cases the symptoms as a rule gradually subside after the second day. For such rest in bed, a bland diet, opiates in moderate quantities to relieve pain, and hot fomentations over the site of the pain are sufficient to relieve pain and hasten recovery. An enema of hot water, if the bowels are constipated will be found beneficial; but cathartics are generally harmful, though if the bowels have not moved for a number of days and the enema is ineffectual, a mild saline cathartic is admissible. Had we some absolute criterion for determining the extent of the morbid process, our duty in the matter as a physician would be easily discharged. Many careful observers have been searching for such a criterion; but it

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has not been found. Many reported cases show that the patient will apparently progress toward recovery, when a sudden seizure of pain will supervene. Shock and collapse will follow, and speedily death, if operative procedure is not at once instituted. It has been shown that perforation may occur within a few hours of the onset or not until the sixth day.

Fitz found that in 176 cases from perforative appendicitis sixty died during the first five days, forty-six during the first four days, twenty-eight during the first three days, and on the second day eight cases died.

McBurney's discussion of this subject is most excellent. I feel inclined to quote it in full, but it is too long for the paper. According to him the mild cases will show signs of improvement at the end of twelve or twenty-four hours, at least in the majority of instances, if no improvement has taken place, there will be no evidences of further development of the process, or if at the end of thirty-six hours the patient shows signs of an increase in the morbid process as evidenced by increased pain, elevated temperature, quickened pulse, vomiting, distended abdomen, a great prostration, he concedes that operative procedure should be at once instituted. Stimson, in writing upon this point, says: "By waiting a day or two at the onset to see if the disease will not subside spontaneously, some lives will be undoubtedly lost. Some of them, for example, in which unprotected perforation takes place; but these are the exceptions, the possibilities, not the probabilities, and are to be classed with the other exceptions like those in which recovery takes place by spontaneous evacuations through the bowels. He further states we are not to be governed by the exception; but if the patient is not willing to take the risk of waiting, the surgeon is justified in an early operation. He further concludes that early laparotomy—that is laparotomy within the first three days (in grave cases)—enables us to arrest the process by removal of the cause and is less dangerous than expectant treatment." This, I think, is the consensus of opinion today.

When there is evidence of the formation of pus there can be no question as to the necessity of its evacuation. It is not my purpose to discuss operative technique, the scope of my

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paper will not permit it. A question which is yet in *sub judice* is, in recurrent appendicitis shall the appendix be removed during the attack or during the quiescent state? It seems to me the same rules should govern us in the treatment of a recurrent attack that does in other acute attacks. The most satisfactory and the safer time for operating is in the intervals between the attacks and in recurrent cases, where there is a distinct tumor or marked evidences of adhesion, the operation is not only justifiable, but demanded. It must be remembered that the severity of the recurrent attacks varies so that a fatal one is liable to follow one or more mild ones.

The following cases are selected from among those I have seen because they represent different and interesting phases of the disease.

Case 1.—Mr. D. M. P., manufacturer, aged 40, was taken ill when away from home. The first symptoms were obstinate; constipation and collicky pain in the cecal region (this was January 22, 1892). A physician was called and prescribed Hunyadi water, and gave morphine hypodermically. The pain was relieved, but much nausea and vomiting followed. The bowels did not act. June 24th the patient returned to his home in this city and called Dr. Stone, his family physician. Dr. Stone found the patient with a distended abdomen, great tenderness all over the abdomen, but most intense in the caecal region, where there was considerable tension, but no tumor to be felt externally. Rectal touch showed a moderately large tumor in the right inguinal region. There were nausea and vomiting. The bowels had not moved for several days. Temperature was 102 and pulse was small and quick, 120 to 130 per minute. The general appearance indicated grave illness. Dr. Stone gave morphine hypodermically and began the use of high injections of large quantities of hot water. Turpentine and castor oil injection were also used, and hot fomentations applied to the abdomen. Dr. Cook was called in consultation and agreed in diagnosis and treatment. For two days the

1. An Association of physicians, 1886.
2. Annals of Surgery, April, 1891, pp. 2, 431, 244.
3. New York Medical Journal, October 25, 1890, p. 456.

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treatment was persisted in without much change in the condition of the patient, except that he had become gradually worse. On the evening of the 26th instant he became much worse, when a consultation with Drs. Stone, Cook, Dunning and Jameson was held. Before we arrived the patient had had an attack of stecoraceous vomiting. A large amount of fecal matter had been thus ejected. The bowels had not moved; the patient was apparently in a state of collapse. The countenance was pinched, the extremities were cold and there was capillary congestion in the extremities. The pulse was rapid and very weak. The abdomen was considerably distended; a tumor larger than my fist was made out in the right inguinal region. It could be distinctly mapped out by combined examination. I was called especially to consider with the physicians the matter of immediate operative interference. Such a procedure I considered, in view of the condition of collapse, as more hazardous than other means, and advised calomel and sweet oil by the mouth. This course was finally agreed upon. Five grains were administered by the mouth and followed by two grains every two hours. When twelve grains were given one-half pint of sweet oil was administered. Stimulants in moderate quantities were given by rectal injection and friction applied to the extremities and fomentations to the abdomen.

The calomel quieted the vomiting somewhat and three hours after the administration of the oil the patient had a movement of the bowels, when the vomiting was relieved and the patient began to improve. During the following day he had several liquid movements from the bowels; but no large fecal discharge. He steadily improved in all respects, and went on to a slow recovery. The tumor gradually diminished in size and at the end of three or four weeks could be no longer detected. I saw the patient recently, could detect no local evidence of a tumor. He is now in robust health. This case is very instructive as showing the beneficial results of medical treatment even in some desperate cases. Had there been fluctuation in the tumor, immediate operation would have been demanded. My view of the case was that the tumor we found after the stercoraceous vomiting was made up largely of the inflamed cecum, head of the colon and the appendix with inflammatory tissues

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about these organs and some impacted feces within the intestines. I thought sufficient adhesions had taken place so that should perforation of the appendix occur, the general peritoneal cavity would not be affected. The stercoraceous vomiting was in this case unquestionably conservative. That the major part of the fecal accumulation was gotten rid of in this manner was proven by the fact that no large quantity of foecus was discharged by the rectum. That the tumor found after the vomiting was largely due to inflammatory processes is proven by the fact that it did not disappear suddenly on movement of the bowels; but that it gradually subsided, disappearing with the sub of the inflammation and absorption of the inflammatory products.

Case 2.—Miss L., aged 32, unmarried, school teacher, had first attack September 3, 1892. The pain in the coecal region came suddenly after a few hours of uneasiness and some nausea. The pains were colliky throughout the abdomen. Three days later the pain was located in the region of the appendix vermiformis. It required large dose of morphine to relieve it. The use of this was continued for one week. Tympanites began one day after the onset and was confined to the right side of the abdomen. Fever appeared after a few hours. The patient had an attack of diarrhea one month previous to the onset. In the first attack of appendicitis the temperature on the third day was $102\frac{2}{5}$, pulse 120; at the end of six days the temperature was normal. At first the bowels were constipated, but were moved the second day with castor oil. There was no tumor; but much tenseness in the right inguinal region.

After the attack she taught school five weeks then had another attack. This was in October. The pain was severe, lasting three days, then was mild. A tumor was now noticed at the McBurney point. It varied in size, was movable, and was the seat of pain. It could be distinctly mapped out by combined examination with one finger in the rectum. The pain was relieved by frequent blisters, but the tumor remained. The third attack came November 30 and lasted several days. She was sent to me by Dr. O. Wilson of Fairmount, January 20, 1893. She was well nourished and apparently in good condition of general health, but walked with difficulty. The right

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limb was swollen and complete extension was painful. The tumor was at the McBurney point and as described above. It was adherent to the abdominal wall to the front and was about as large as a lemon.

Diagnosis.—Recurrent appendicitis. I advised removal of the appendix and separation of the adhesions. The patient consenting, it was done January 22, 1893. The appendix vermiformis, cecum and head of the colon were adhered together and to the abdominal wall. This was the make up of the tumor. The appendix lay against the cecum and was adherent to it. In separating the appendix from the cecum, a few drops of pus were found. The appendix was ligated near the coecum and cut off. The adhesions were separated and the operation was finished in the usual manner. The patient was quite ill for several days and then recovered rapidly. The pain has entirely disappeared and the patient thinks herself well.

The chief points of interest in this case are the frequency of the attacks, the persistence of the tumor and the presence of the minute abscess. The specimen shows the presence of fecal concretion, these tightly packed the appendix. An abscess was forming. It was localized. Had it developed, it would probably have been safely shut off from the general peritoneal cavity, but would have lead to a prolonged illness at the best.

The outcome was a most fortunate one and adds another to the list of cases strongly indicating the advisability of operative procedures in recurrent appendicitis, where there is a distinctly localized tumor.

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PRACTICAL ANATOMY IN MEDICINE AND SURGERY.

J. E. LINK, M. D., OF TERRE HAUTE, INDIANA.

As I have before written "I dislike to write," and with the thought comes the refrain: Why do men like to write? Why do they write?

There are, probably, three central causes, standing, I think, most prominently as actuating forces. The most prominent one, the light that is in the mind of things seen from individual standpoints, as it were. In elaboration of such intuitions, we could, I think, place earnest thought from observation; the power of observation through the quick preception of incidental facts.

Then the earnest toil in gathering from various thinkers and writers accepted theories as coelaborated with a desire to condense in a more simple form the conception from deduction, the collation of texts; and, thirdly, the faculty and desire to clothe thought in more attractive form.

These, it occurs to me, are the three most laudable ambitions of man to put thought in black and white. That only a small proportion of those who write are truly actuated by such ambition, I am sure you can but agree with me.

Under the head of commendable ambition and comprehended under either or all of the above headings comes the visatergo incentive to correct fallacies, or fads in our profession.

I see in the teachings, or tendencies, too much of the latter and whilst a fad may be a fact, faddism is fallacy.

The medical and surgical practice should be based more upon individual resources, after a thorough knowledge in the a, b, c, and multiplication table preparation.

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In the superstitious environment of medicine we find too much faith in things unseen and we are not only hemmed in in our environments with the stumbling blocks of superstition, but have too much of it within us to admit of its being overlooked in our preparation, or education, and practice. Materialism as a first and most necessary lesson in riddance of this superstition, must stand in a practical field, not alone in surgical but in all scientific research and practice pertaining to the human system.

The pathology of diseased action must be understood in a truly mechanical sense. No diseased action can obtain without a changed structure, whether in tissue or fluid. We can have no practical thought except through a mechanical process in the organ of the mind. However we may ridicule "mass and motion men," we must admit that without form there is no practical conception of things.

We can, I think, have a better conception of the mind the more thoroughly we become acquainted with the brain and its various centres as an organ.

A man without a head is a man without possibilities of mind action. We could have no comprehension of a mind emanating from the body without the organ of mind, the brain So we come briefly to the idea that the more thoroughly we familiarize ourselves with the various structure of the human organism, of congregated parts, the more fully we are capable of comprehending its functions in health and realizing the ravages of diseased action, if out of tune. Anatomy and physiology, with pathology, is one and the same, scientifically. With anatomy we associate physiology, and with these disturbed, we have pathology, practically their opposite. My conviction is that we should make the study and reference to anatomy always precede in a greater measure than we ever have, all teachings and discussions of our professional work; that we can not do too much in this line, but that the constant tendency is to do too little. Therefore I come before you again and again urging the necessity of more anatomical study, and less fadism in our study; not what does Lister teach, but what is man? Not so much of what will heal this lesion, but more of what is this organ, this tissue that is in a pathological state, either from

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disease or injury; and what the true nature of the lesion, in its intricacies—of form and function—in its very cell formation and function, than what Lister or John Smith says. These are each of more value as in harmony with the material facts before you; and no part of superstition, nor faith in things through the popularity of the man or his accidental standing to warp your judgment.

The doctor must know anatomy to be a true, safe physician; and though a bold knife may cut to bone, and saw finish the mechanical work with chance success, but the reckless adventurous work is not evidence of a true surgeon by any means.

One important mark of evidence of the qualification of the new beginners should be the ability to name the structure of the tissue cut. In amputation of a limb, to recount the muscles in layers and recognize them immediately on sight. Then he is enabled to find the artery necessary for ligation, and, more than this, he is a surgeon, in embrio at least, his knowledge of the part is evidence of his interest there and in its beauties, revealed by study, is cultivated the desire to conserve. The man that loves to cut is less than a butcher; the man that only cuts to save is the true surgeon. In my limited experience of four years as teacher from the rostrum I was led to the conviction that anatomy should not only be taught, as now the a, b, c and multiplication table business, but should, like them, make up the mass of all the work done.

We should see plainly the letter composing the word—the letter of the science—prominently implanted; that to systematize to the very best advantage there should be a chair or chairs of applied anatomy in every school. To be more explicit, a chair of special applied anatomy associated with each special branch, eye and ear, diseases of the brain and nervous system, abdominal and thoracic viscera, etc.

Teaching first most thoroughly the anatomy of the structure and only taking disease—pathology, etiology and semiology—with treatment as secondary to or a minimum part of the students' preparation for the entering into the practice of his profession.

Less attention should, I am convinced, be given by the student to hospital clinics and only so far as to impress upon

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him the practical advantage of a thorough knowledge of the anatomy and the physiological processes of the part.

I was fully persuaded that but little good could be accomplished in the limited time of attendance upon lectures that would be of lasting advantage to the practitioner, excepting the establishing of a sytematic method of study—a teaching of what and how to study.

I taught my students in the office or lecture room how to master first the bone. If the clavicle, its borders and surfaces, to which the muscles and tendons were attached; to be able to take up the bone, and mark with pencil, or pen and ink the boundary line of the muscle and write the name there; to be able to lay the finger at once upon the point of attachment of each tendon; then memorize the action of each muscle so attached, until, when upon the study subsequently of the other bones in the finding of the point of insertion of the tendon of the same muscle, it became a revelation to his mind; and when the time, finally, after months of such work, comes for him to dissect, and with tedious cleaning of, or in the prosected muscle is the revelation like seeing for the first time the great man, whose works we have long admired and learned to love the study and growing comprehension of, stands before us, the object of our desire and worship.

With such systematic study, still and ever keeping the various points in memory and object before him, the student not only learns by rote and retains, but has acquired the power through habit of analyzing, of mastering and loving the evolvement of a science not comparable to any other "man knowledge of man"; yes, of his personal mechanism, every action of body or mind may be so comprehended that he sees his own framework of muscle, bone, ligament, tendon; each organ, the very heart with its tree as if in twig of root and branch in the life-giving impulse; as if looking through a glass, a transparency in the mind's eye, each in its part and function, as in colors made distinct; the play of the muscles of each limb a thousand times more complexly intricate and beautiful than the interdependent wheels of a chronometer in action.

And this is his pleasure when walking in lonely contemplative moods; or when pain or pleasure comes the centre of its

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origin, or the laboratory within the labyrinth of his brains. Not only these, the satisfaction of his active hopeful life made a beautiful contemplative study and practical application, but the very going out a study and comfort, it may be, as in my preceptor's dying, he studied death with living interest, feeling with feeble hand-touch the lagging pulse with a faint nod or shake of the head when too feeble, too near the ending to articulate; he indicates the better or the worse until no wave comes to tell him of his heart's struggling effort; he shakes his head and with drooping eyelids awaits the approaching end. Dying the death of a true philosopher; yes, a true follower, too, of the lonely Nazarine, he says, "It is finished."

How I wish that all but such could be barred by the statutory enactments of our commonwealth from the practice of our profession. That those who are by nature, through desire and application, competent should thereby reap the reward, not only in increased income, but, too, the recompense of favor. Then the variest quack could not, as now, not only steal the patronage, but impugn the honor.

If I could only do something that I might feel the assurance that good in this line should come of it, I would not only work, but teach in precept.

I rest in the faith that good intentions, coupled with energy, will not only meet this reward within our conscience, if nothing more, but that every effort in good seed sowing will sometime bring forth fruit sweet unto the harvest. Therefore, I beg to be heard, and that my effort will not be construed as a mere hobby. With the lessening of didactic teaching in our schools comes the hope of the dawning of the day, that all teachings in our medical college will be over a carefully prosected cadaver. With every pathological specimen should be shown the healthy structure freshly dissected, or, if possible, vivisects. When a fracture of the bones of the extremities is the subject of the clinic a dried or fresh specimen showing the muscles in relation to, and a bone fractured or sawed as nearly the same point and of the same character as can be, would do more to impress the student than can possibly be done by oral explanation alone.

If the Professor of Surgery will, for instance, take a fresh

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dissection of the lower extremities and so separate the muscles as to show the bone at its point of fracture, he may find that he will not only teach the student the mechanical part in relation of muscle to bone, but will obtain a valuable lesson if he follows the suggestion in the position of flexion and rotation in relaxing the tension of the muscles necessary in making the exposure of the bone to the very best advantage. He will find that for the shaft of, the femur extension is contra-indicated, and that with proper rotation and flexion, all, or nearly all, the muscles are relaxed and consequently in common mechanical deductions, for the proper adjustment of fractures to this bone, only support in a mild, stiffening dressing is necessary with the limb on an even plane with the body. That only ordinary mechanical force, sufficient to carry the weight of the distal end of the fractured limb into proper position, is necessary, both in its re-adjustment and maintenance in the normal length; and so, in a manner, we may all learn impressive practical lessons from day to day, and hour to hour from a strictly anatomical standpoint.

With such knowledge and faculty of deductions the true surgeon, with bandage and such devices as are at hand in any inhabited region, readily constructs his dressing with far more comfort to the patient and with better results, than to attempt with the splint, long and straight, with rachet and screw, not possibly fitting more than our subject in a truly physiological sense, and then only possible if made from cast of body modeled by an artist and executed with the skill of a sculptor.

They are instruments of torture to the victim of accidental injury and so-called surgery. No true surgeon need carry with him a fixed appliance for the dressing of a fractured limb. Hodgen's splint is not here implied, although I do not use it, no more than the bed of hair mattress or the like the patient is expected to lie upon. Both are subject to variations, but within the field of "rest, without restraint"—physiological support.

The advantages of a thorough knowledge in minute anatomy is of more gratifying and practical importance to the physician, if any difference, than to the surgeon.

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I am every day receiving more and more convincing evidence traceable through topographical lines to central localization of the various phenomena associated with the prevailing epidemic of malaise commonly called grip, that the center of origin of the pneumogastric nerve, with its prototype—the sympathetic nervous system,* in the medullar oblongata, is its primary seat, the various expression in pathological sequence point, with the refulgence of an electric finger, in unerring accuracy.

(Please see article on "La Grippe," Journal of American Medical Society, July 23, 1892.) And I would add to this, as evidence of disturbed centers of inhibitory and active force, my personal experience and observation. Mrs. B., of my town, in a prolonged sickness, December, 1892, in which the pulse was frequently down to 34 to 36, and no evidence of organic lesions of the heart; still living and in good (for her) health; and with it my own case, occurring within the last month: Sudden depression following prolonged physical and mental strain, in which I counted in two consecutive counts within a ten-minute interval, 98 beats to the half minute. I am now in my usual good health; normal pulse, 68 to 73. In my own case relief was prompt within fifteen minutes after taking a full dose of antipyrine with guarana, a glow of warmth and comfort replacing the most terrible feeling of inenitity that I ever experienced; head down on a level with my body, feet elevated, I could only see the hands of the watch held near me; the ceiling of the room above my head had vanished beyond my power of vision, and only strength left to feel and count my pulse. Relief in Mrs B.'s case was also marked under influence of the same drugs. Add to this the struggle with Mr E., with expression of persistent hiccoughing, a plain case of a switching off from the pneumogastric trunk onto the sympathetic and descendens noni, a branch of the hypoglossal nerve, having its origin in the floor of the medulla oblongata near the fasciculus of the pneumogastric.

In this case Dr. G. V. Woollen, of Indianapolis, was associated. There had been no influenzic expression and though

*See Carpenter's Physiology, p. 327.

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the patient was much exorcised and annoyed at any reference to grip, there was the evident malaise—indisposition to active exercise, early rising, etc., for several weeks prior to sickness. The tongue was as if boiled in milk, as Dr. Woollen expressed it in description to an inquiring friend, like a pickled calf's tongue. There was a lymphangitis of a mild form, slightly similating facial erysipelas, to which we saw fit to pay no especial attention. It swept like a ringworm from the nose in a circle across the face and scalp, leaving an island of returning healthy skin within a few days.

The hiccoughing only subsiding after five or six days of persistent medication of strychnia in as high as one-eighth grain doses of the sulphate repeated every three or four hours, with no signs of unpleasant physiological effects. Nitro-glycerine in one-twenty-fifth grain dose. Nitrite of amyle and monobromide of camphor, with asafetida in capsules, each in turn gave temporary relief, sleep, though more or less disturbed with hiccoughing.

That the hiccoughing was the result of central causes no one in patho-physiological reason could doubt; and the lymphangitis, like numbers of others seen within the year, was of neurotic, sympathetic, nervous system origin, is, to my mind, convincing in the universal accompanying paleness and malaise, remediable in all instances with strychnia and other neurotic remedies.

As Dr. Robert T. Morris, of New York, so impressively asked his personal friend and doctor, when passing a graveyard: "How many appendicitis patients have you in there?" Then adds, "If the grave-stones of every appendicitis patient, who need not have died, were to give out a light, every cemetry in the land would shine at night."

Let the doctor ask himself who has seen only in this terrible epidemic "influenza," and treated the various expressions of the central malady—paresis of the pulmonary branch of the pneumogastric with neurotic inflammation, orthopnea, general and local—as a congestive inflammatory pneumonia; neurotic laryngitis and tonsilitis often similating diphtheria; lymphangitis for phlegmonous erysipelas with variou other sseeming congestive; sthenic disease, cerebo-spinal meningitis, cerebritis,

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liver, uterine, kidney and bladder disturbances; every organ and tissue presided over by the sympathetic pneumogastric, hypoglossel and glosso pharyngeal nervous ramifications, springing from one common laboratory of vital force at the floor of the medullar. Let him answer as to the number of patients he has in the cemetery from among these, each and all, especially "heart depression," "heart failure," the worst of all empirical excuses for death. Yes, verily when the power that runs the machine is allowed to exhaust the action stops—the electric light goes out. If your city were suddenly involved in darkness, and the stranger among you should ask, "What is the cause of this?" would you say our electric lights have gone out, and when asked why did they go out, would you answer, Oh, the carbons don't burn? The light had to go out. With eyes only on the carbon as an eliminator of the fluid into light, with no deeper thought of the dynamo just yonder at the power house, from which comes, the phenomena would be but in harmony with such superficial excuse as heart failure.

If the homicide who shot or stabbed his victim through the heart or brain, would enter such a plea as cause of death, and the judge upon the bench acquit, would the community, headed by our learned profession, approve? And yet, from a truly scientific standpoint, it would be just as rational.

And now let me say in the spirit of earnest belief with Dr. Morris, if the numerous grave-stones of our cemeteries over patients dying from all these enumerated misdiagnosed cases that might have been saved through a proper conception of their true etiology, with rational treatment, were lighted with a single candle power, the cemeteries would need no electric light to guard them against body-snatchers, or to direct the loving wife, husband, mother or father, sister and brother, son and daughter to the spot where lies the last treasures of their hearts. All, or nearly all, tidable over this fatal chasm of disturbed vital phenomenon.

No deaths from any of the above causes have as yet occurred in my experience or practice during the last three years.

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INDIGESTION; ITS CAUSE, PREVENTION AND MANAGEMENT.

BY DR. C. G. R. MOUTOUX, OF KASSON.

There is perhaps no subject of more general interest and importance than the study and investigation of the functions, disturbances and disorders of the digestive organs; yet it seems to me quite out of place to recite the physiology of digestion and nutrition and the pathology of indigestion in the presence of my learned professional brethren; and agreeable to the purpose of this paper I shall confine my remarks mainly to individual observations, thoughts and opinions as to the causes, prevention and management of indigestion, and prefer not to adhere to certain forms with special nomenclatures, but rather embrace all under the general heading selected for this transmission, and aim to follow the whole subject to a rather more rational and different sphere than that to which scientific hypotheses would lead. And, therefore, if I should seem occasionally to divert from the problem, it will nevertheless prove to bear close relationship.

Let us be mindful that the human is a natural being as well as all other animals, governed under certain undeniable laws, and the more the individual, by correct intellect and instinct, is obedient to its guidance and rules, the less disease will prevail, and the enjoyment of the greatest earthly gift—health—will be secured; for, according to rational philosophy we are not created primarily for disease, but for health, and therefore we must accept and be subservient to the intentions of our being, and, as a fitting chapter, embrace the most important Indigestion is selected, for it is the pre eminent vital one, teaching the necessity of and adherence to common

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sense and natural precepts as to food, bodily exercises, clothing and social relations, and the individual will be rewarded according to the fulfillment and acceptance of fundamental rules.

It is a fact that the more refined civilization and mode of living becomes rather a pitiful necessity; digestive disorders will prevail more and more and will result in a great (presently not fully appreciated) calamity, as far as the welfare of the human race is concerned.

The sustainance of life and health depends, as we are all aware, upon the proper functions of the digestive organs and insufficiency or disturbance must, for very obvious reasons, result in a train of disorders, designated under a variety of names; although all these groups link so close together in the scope of this paper that I may be permitted to dwell upon them in a general point of view.

Now as to causes and prevention, which, with propriety, may be discussed undivided, for the reason that they are so close dependant to each other, because non-compliance of the latter will excite the other, and so let us investigate.

In our days we strive to introduce into the stomach the real nourishing qualities from articles of food, and detach by chemical, artificial and mechanical processes such particles which are thought effete, and lose sight of the fact that it does not depend on the quantity or quality of food with which the alimentary canal is supplied, but simply on that part of it, which is really absorbed, assimilated and transformed into vital fluids to replace wear and tear and to sustain and strengthen the whole system.

Wherever there is an organic action there must be a certain exciting natural stimulus, which has aroused and maintained its proper execution and in this undeniable fact concentrates the cardinal point we are so much inclined to lose sight of; therefore the endeavor to make use of foods, which are supposed, according to chemical principle, to consist of such constituents, which are claimed to be all assimilated, or, as often lauded, predigested to render nutrition more certain and effectual, yet, owing to their very bland condition, the alimentary canal is deprived of very important and essential means of stimulating

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and cleansing (as I may broadly express it) properties to insure active journeying action of stomach and peristalsis of intestines; for, if their food contents are not composed of such qualities, the mucus of their inner covering of mucus-membrane will accumulate and by exosmosis condensed, through this; the ducts of the absorbent lymphatics choked up, as it were, absorption interfered with or even suspended and inefficient nutrition the inevitable result, nevertheless highly nourishing food is introduced. The intestines suffer in a similar manner, because, besides their necessary peristaltic action is wanting, through which the bowels could be enabled to further exhaust the nourishing materials of their contents and to expell more regularly the excrementitious matters in proper consistence.

Overloading of the stomach, too many heterogeneous and faulty substances mixed together, improper food of various kinds, such as, for instance, iced dishes and drinks, which prevents that viscus from maintaining such temperature as is required for the sufficient fermentative process; also, unripe fruits of any kind; vegetables in a partly decomposed state, and it may be questioned that all canned goods are wholesome if kept in other than glass enclosures. Further in the list may be enumerated the exclusive use of the white flour of the present milling process, and I wish to lay special stress on the erroneous idea that the snow white flour which is in such exceptional demand for baking and cooking purposes acts, I believe firmly, in the course of time, especially prepared as bread, as an indirect and slow poison, because, although a beautiful sight to the eyes and smooth and delicate sensation to the palate, it lacks in its various baking preparations just the very requirements to serve as the stimulating factor of digestion, besides being in a good proportion devoid to sustain the strength and nourishment of brain, muscle and bone, and therefore, inefficient for all intents and purposes, hence unwholesome, but the most so in the form of hot biscuits (which you will please allow me to call the bread for the doctor's purse); as also pies, pastries, etc., for all of these are prepared from the so-called best (?) flour, deprived of the germ and bran particles, so eminently beneficial and even necessary to realize in bread a food for all purposes of proper digestion and

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assimilation. Bran and germ considered, they are scrupulously avoided from being mixed with flour for fear of discoloration, in the present roller milling, but there can be nothing more erroneous, for it contains all mentioned auxiliary pre-requisites and the doubt as to nourishing qualities is without proof, otherwise cows fed with it would not improve in quantity and quality of their milk. Yes, farmers even use it to increase the fertility of the hens; but besides acting as a gentle laxative, hence, the real happy combination of so-called Graham bread and pumpernickel, made from well-cleaned crushed or roughly ground wheat or rye.

Spices are also considered as a stimulating factor of digestion, yet this is only exceptionally true, and those of a hot and acrid nature are more productive of evil than good, for if the stomach becomes accustomed to such, it will have the final effect of obtunding the sensitiveness of the terminal nerves of that viscus and will require, if habitually indulged in, a gradual increase of quantity; very moderate use of spices in certain conditions may be occasionally beneficial, never a continued indulgence.

And also may be mentioned the list of malted, spirituous and plain fermented liquors, such as wine, cider, beer, etc, and it may pe put down as a certain rule that only those of them are the least injurious which come to the consumer in an unadulterated form; hence wine made of pure grape juice is the most wholesome; so, in a less degree, cider of pure apple juice; beer of only malted barley and hops (but where can such be found nowadays?) is occasionally refreshing; still all of these will not prove a favorable adjunct to digestion if indiscriminately indulged in; whisky, being a diffusible stimulant, ought to be classed more as medicine than beverage. All spirituous beverages may act, under circumstances, as causes of indigestion, and should be used when common circumstances call for them, although strictly avoiding the creation of a habit; let us be masters over ourselves and be guided by the golden rule: never to drink when not thirsty or indicated.

The products of the garden, such as fruits and vegetables, are, if moderately used, never a cause of indigestion, provided the stomach is in such condition as to digest any or all of

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them; a rational regimen demands such for many reasons, among which may be mentioned that they are not apt to be so finely masticated, and their fibrinous nature favors stimulation as well as nutrition, so also demanded as a change in our diet. While fruits are refreshing and aperient, vegetables nutritious, and other products, such as beans, peas, etc., rank as the more substantial foods not so easily digested, are, under circumstances, beneficial and called for; they will at times act as factors to disturb digestion.

Man, classed among the omniverous animals, requires, besides food of the vegetable kingdom, edibles of a carnal nature, but with due discrimination as to quantity, kind and intervals, and may be taken at all dinners, and perchance at breakfast and supper. While raw, healthy, chopped meat may be classed the most natural, yet slightly roasted or cooked, and especially the so-called meat soups, may often serve an excellent purpose, although an undue amount may sometimes act as a cause of digestive disorders or costiveness.

The bad habit of using too much salt is also worth mentioning as hurtful, for it creates an unnatural thirst, and in satisfying such call the gastric juice is thereby too much diluted and deprived to properly act on the contents of the stomach.

Improper intervals of meal-time is also a great cause of indigestion, and the length of time depends on the digestibility of food; and the great rule holds good in all cases, "let the digestive process of the stomach be undisturbed to near completion, before a fresh supply is introduced;" and as to the meal itself: "Whenever we become real hungry or thirsty, that will be the proper time to eat or drink;" and also, "not to continue eating to a point which begins to create a feeling of uneasiness or discomfort;" therefore, "to stop when it tastes best." Three meals a day is all sufficient for general custom, except in long daily labor hours combined with continued physical exertion.

Exercise of the body, nowadays more avoided than practiced, for fear of fatigue, is also a factor for receiving a punishment in the form of gastric disturbances; for while practicing muscular movements and actions, we do not alone stimulate their development, strengthen bones and ligaments and improving

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elastic and quick locomotion and manipulations of the various parts of the body and also serve as the main factor to become real hungry, because the stomach by this means rids itself more readily of its contents; the only proper condition to receive a fresh supply of food.

Early in the morning especially, bodily exercise of moderate duration is needed, not alone as before indicated to create appetite, but more so to assist in stimulating the lower bowels to expel their burden of excrements, which have accumulated over night. At night, after joining the home circle, that time should be spent in as pleasant a manner as possible, chasing away the sorrows and hardships of the day and the result will be a good appetite, and after retiring, a sound and refreshing sleep, in which even the coming offspring will have their unaccountable share of benefit.

Indulgence in so-called "late hours" should not be favored, and we should not forget "early to rest and early to rise," so, also, our sleep should not be prolonged beyond seven or eight hours as a general rule.

Errors in the mode of dress, paramount as to tightness and inconvenience, is often a cause of imperfect digestion; and knowing, for instance, that over-accumulation of serum in the pleural sacs embarrasses respiration, ought we not profit by such precept? Each organ must be free from constriction and pressure in the execution of its functions, formost stomach, liver, spleen and intestines; give them fair play and a great cause of interference with their proper action is avoided.

Too warm clothing, the wearing of which has become a general habit, for fear of taking cold, is very unwise, for persons favoring such custom are just the ones to become, by the slighest occasion, the easiest chilled, for the reason that their skin is so sensitive as not to be in condition to withstand sudden changes of temperature; and, owing to this fact, the digestive organs suffer also in sympathy, causing disturbances of necessarily equal temperature. Let the body be accustomed to reasonable exposure, and in the event of chilliness take advantage of exercise, and a general warm and relieved feeling will result. In closing this part of my paper I can not withhold giving a recitation of Dr. Boerhaave's maxim: "Never

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clothe to sweat; keep cool the head, the bowels regular and the infero-posterior orifice of the alimentary canal open, and you will deprive that class to whom I belong of a lucrative income, yet secure the happiness of all other classes."

The management should make paramount the subsidence of all remote, immediate and existing causes as much as ever attainable, which have been principally previously enumerated; also, strict obedience to the prescribed diet and conduct, and as a rather auxillary a few well selected medicaments to assist nature in overcoming the disorder. Truly so, the treatment is found often to be quite a difficult task for the physician, for we have on the one hand rather uncontrollable patients, and on the other that this part of our purpose seems not to be fully enough appreciated by the fraternity in general; how, otherwise, could be explained the enormous taking of pepsin, pancreatin, lacto-peptine, ingluvin and a great variety of artificially prepared articles for food in disease and convalescence, and I confess to you, gentlemen, that during many years of actual practice I have not used one ounce of any of these, and it has fallen to my lot to treat a multitude of cases with universal satisfactory results; for it has been my rigid custom in the treatment of indigestion to put the stomach in such condition to digest and absorb the nutriments of the food introduced, because no matter, pepsin may act on albuminous substances and other classes (such as pre-digested foods) extensively used with the view of securing nourishment, yet any and all of these substances can not be of great service if the alimentary canal is not in a condition for satisfactory digestion, absorption and assimilation.

To commence with a proper regimen, in the early morning from one to two glasses of pure soft water should be taken, and after this a short walk or ride practiced, and for several days two to three regular meals, to consist of Graham bread, well baked with a good crust, soaked in water, and very gradually and cautiously the addition of plain coffee and meat soups, deprived of nearly all fatty constituents, or a soft boiled egg, merely as a change.

All organs, having an important mission in the digestive process, carefully watched, and their failing duties rectified,

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and for this purpose well selected medicinal agents are often of service, for we may administer for acidity: soda bicarb or magnesia carb, and by accompanying eructations, aqua meuth pip; foul taste in the mouth and decomposed food in the stomach: acid salycilic or quinina bisulph in minute doses, in proper combinations to suit special cases and indications; inactivity of liver: pulv ipecac, rhei, or, perchance, podophyllin; costiveness, so often concomitant, relieved with bran and water, mornings and nights, and may be cascara sagrada or other mild laxative, and, if further indicated, an injection of one pint of warm water in which one tablespoonful of common salt has been dissolved.

When the appetite is rather slowly improving, comes the adjunct of bitter tonics, slightly spiced, such as a varied combination of gentian, calumbo, peruvian bark, orange peel, coriander, caraway and cloves, tinctured by percolation and diluted with a weak alcoholic mixture without the addition of sugar in any form, and taken in certain quantities before meals, also continue throughout the use of Graham bread.

I have during the whole course forbidden fat meats of any kind, freshly baked bread, biscuits, pies, pastry and confections; vegetables later on allowed to a limited extent; diluted whisky only for special indications.

An emetic of ipecac must also be administered as often as a tight feeling and rebellious condition of the stomach exists to rid it of all offending contents.

This plain treatment and the willingness on the part of the patient to strict adherence of orders given act almost as a specific and in the whole management of indigestion let us be constantly reminded of the great truth, "that the physician himself can not cure, because it is the power of nature and the only real service for the physician is his endeavor to merely assist nature in rectifying existing disorderly conditions and to remove, as far as possible, all obstacles which prevents nature from accomplishing its varied functions and missions, and to maintain such degree of health as will secure bodily and mental happiness.

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GENERAL PROGNOSTICATION.

There is no doubt that insufficient nutrition caused by indigestion is fruitful of creating or causing almost all other disorders and diseases (of course surgical excepted) if not primarily, certain in the course of disease and convalescence. I am of the opinion that especially wasting diseases such as terberculosis and cachexiæ, etc., indigestion is the prime cause, and all endeavors of scientists, men like Koch, Pasteur and others, will never benefit humanity by their inventions, investigations and theoretical speculations, if the fundamental causes are not removed and exciting causes prevented, and for this reason I have devoted, for years past up to the present time, hours of leisure and opportunity to unveil the true cause of the lamentable fact, that the human races are gradually declining in regard to physical development and abilit to resist the strain of protracted mental and physical exertion, for we observe in the human body in successive generations mor delicate structures, bones become more slender, muscula power weaker, hands and feet more neat, mammæ of females less developed, skin more smooth and velvety, the growth of hair less plentifully distributed, baldness of frequent occurence, and so also other parts of the body, such as the breast of the male and along the linea alba down to the pubic region and genitalia are more and more devoid of the usual abundance of hairy covering, and the same is true in reference to the beard, distinguishing the face of the male. Paturition becoming more difficult and conducted by too many artificial means and procedures, and owing to the slightest sensation of pain or disease, the therapeutist, armed with a multitude of curative (?) remedies, called upon and the pitiful victim of a thoughtless physician or meddler becomes often a walking laboratory. An every day proof of this assertion is the enormous use of patent and proprietary compounds.

The premature use and the abuse of the reproductive organs; so, also, the wide-spreading evil custom of artificially preventing conception, to save family troubles and escape pain and individual inconvenience; all these circumstances will render

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the human gradually to a being constantly and wrongfully meddled with and against all laws of physiology. And if such conditions shall continue the human race which now inhabits the earth will, ere long, be extinguished if the population will not change wrong habits, modes of life and social and moral relations; and no curative invention, imagination, superstition and theoretical speculation will halt the march to final destruction.

Let the well-meaning, conscientious physician lead in the correction of existing evils and senseless precepts, and to bear ever in mind his real and noble mission to be "not a master, but a faithful servant to nature," and in this spirit to become the greatest benefactor of humanity if his well-grounded precepts are accepted and adhered to.

DISCUSSION.

Dr. Bond, of Richmond: MR. PRESIDENT—I would like to call attention to the fact that in the last ten years the expectancy lists have increased from about 33⅓ to 40 years in the large cities, and the increase is due to the efforts and knowledge of medical men. With all the different kinds of food we have been eating, still the knowledge that has come to us, the scientific resources of medicine have enabled us, over and above the facts the doctor states in his paper, and the pessimistic view he has announced, to increase the expectancy from 33⅓ to about 40. Now, with that rate of increase, in the same line that we are now pursuing, we have a right to expect better things in the future. I am not inclined to think we are going to destruction in these matters. There are a great many causes for alarm in regard to matters of digestion, and the doctor has made a number of good points; but those matters are to be taken up not so much with relation to the quality of food as the quantity. The quality of food has never so much to do with it as the quantity that people in the sedentary walks of life eat. We are now largely becoming a sedentary people, and a great many of the troubles that have arisen that have been pointed out are due to that fact. I am not inclined to think that all the Graham flour that people might

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eat would relieve the condition. There are a great many other conditions that must be looked into in the way of abnormal secretions in the stomach. For instance, it is a well-known matter that the contents of the stomach can be drawn, and can be tested as to the amount of acid and the kind of acid that is present there, and the different ptomaines that are formed there can be differentiated, and the proper treatment of those cases would be to find out what was the matter in any particular stomach that must be counteracted by a drug, and the counteracting drug should be used in that case. Just heterogeneous medication of the stomach or certain kinds of food will not relieve these cases.

Dr. Moutoux, of Evansville: MR. PRESIDENT—I have nothing more to add. I only ask the gentlemen present, if they want to bestow a special favor upon me in their practice, to just try my plan of treatment before condemning it, and if I should have the pleasure of meeting you in a year from now, which I hope to do, I would like to hear from all those who have tried the plan, how they like it. The proof of the pudding is to eat it.

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THE CAUSE AND TREATMENT OF MANY CASES OF VERTIGO, HEADACHE AND OTHER NERVOUS DISORDERS.

BY F. C. HEATH, A. M., M. D., OF INDIANAPOLIS.

The general practitioner meets with many obscure and puzzling cases and nowhere more frequently than in the domain of nervous disorders. Scientific and satisfactory treatment of such cases requires careful investigation of their causation. The neurologist, gynecologist, oculist, aurist, rhinologist and rectal specialist seek to aid him with records and explanations of reflexes from diseases in their special lines, sometimes, perhaps, a little overdrawn, but all containing at least a nucleus of truth.

Careful and honest observers will doubtless admit that there is no more frequent source of these reflexes than eye troubles, and it is this phase of the subject that I wish to consider with you briefly, in as plain a manner as possible, and with careful avoidance of the technicalities of the specialist.

Headaches and other nervous disorders due to errors of refraction (especially hyperopia, or "farsightedness," and astigmatism, or unequal refraction in different meridians) have been brought before the profession so fully and frequently that I will not now dwell upon this side of the subject further than to express the opinion that here is the source of by far the greater number of frontal headaches and sick headaches, besides a large share of attacks of dizziness and other functional nervous troubles.

But we must look to the muscles moving the eyeball for many cases and here we enter a field of much uncertainty and

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disagreement. Roosa and Bull represent one extreme, teaching that the muscles should be let alone, while Stevens, the oculist, and Ramsey, the neurologist, find nearly all nervous reflexes in cases of insufficiency of one or more of the eye-muscles. The truth, probably, lies between these extremes, as the great majority of the better class of oculists and neurologists hold to-day.

The symptoms arising from this form of eye-strain are: headache, especially in back of head and sometimes extending down the neck to the shoulders, less frequently temporal and frontal, sick headache, constant headache, crawling sensations, feeling of pressure or tight band across forehead or vertex; loss of power of attention, concentration or self-control, indefinite fear, dizziness, amounting at times to vertigo, confusion of vision, letters chasing each other, tendency to nausea; numbness in fingers and arms, insomnia, nervous prostration, symptoms of hysteria or hypochondria, and (according to some authorities) epilepsy, chorea, melancholia and other forms of insanity.

The production of these symptoms is accounted for in this way: Nature strives to make us see one object when looking with both eyes. To accomplish this both eyes must *fix* the object, *i. e.*, the visual lines (drawn from the macula or point of most acute vision through the center of rotation of each eye) must be directed to the object, otherwise there will be double vision as any one can easily prove to his own satisfaction by pressing lightly over one lid while looking at anything steadily. These visual lines are practically parallel when looking at distant objects, but become more and more convergent as the object approaches the eye. It will thus be seen that the position of our visual lines is constantly changing and that these changes require frequent action of the six muscles upon the outside of each eyeball. While these are so well balanced normally that the adjustments are easily made, whenever any muscle is relatively weak, it requires a special effort to fix the eye properly and muscular eye-strain is likely to be developed, so much extra nerve force being consumed that the patient suffers from one or more of the reflexes named. In neurotic subjects slight insufficiencies may produce annoying symptoms, and the extreme cases reported are probably con-

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fined to this class of unfortunate beings, many of whom must be content with nothing better than partial relief of troubles, even with the best skill attainable. It has been suggested that some of these disorders are not reflexes, but the result of central lesions produced by constant peripheral irritation, and this might furnish an explanation why the removal of the original cause (the muscular insufficiency) may fail to cure the disorder.

There are several ways of detecting this insufficiency or weakness of the eye muscles, and I usually employ more than one to be doubly certain of obtaining a correct result. I will mention but one, the simplest, easiest and least painful to the patient, viz.: the Maddox rod test. Holding this rod vertically before one eye, and looking at a light, you will see a horizontal streak of light with this eye and the flame with the other; if the rod be held horizontally the light streak will be perpendicular. When the muscles are in equilibrium the streak passes through the middle of the flame, but in weakness of one of the vertical muscles the horizontal streak will be above or below the center of the flame; in weakness of either of the lateral muscles the perpendicular streak will be to the right or the left of the flame. The degree is shown by the number of the prism required to cause the streak to pass through the flame.

The treatment of muscular insufficiencies and the reflexes arising from them consists in:

I. Promoting the general vigor, and removing all unfavorable complications. This includes judicious exercise, proper diet, sufficient sleep, rest from overwork, general tonics, etc., with special attention to the nervous system and upper air passages.

II. Special treatment for the eyes:

1. Correct error of refraction, if any.
2. Strengthen the weak muscle by systematic exercise with prisms or limited and regular periods of reading with stereoscope or abducting prisms, or,
3. Aid the weak muscle by prisms (or decentered lenses), to be worn either constantly or for near work only.

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4. Rest for overtaxed eyes and eye muscles; in some cases even enforced rest by the prolonged use of atropine and dark glasses.
5. A progressive course of strychnia if muscles supplied by third nerve are involved, use of cannabis indica, belladonna, bromides, antipyrine, etc., if the weakness be in the external recti, supplied by the sixth nerve. Galvanism may be tried in either class of cases. We may also add the local use in the eyes of eserine or pilocarpine in cases of the first class, of atropine and other mydriatics in those of the second, while both are relieved by douching or spraying the eyes with cold water or mild lotions and applying stimulating liniments to the forehead and temples.
6. Operative treatment, either partial or graduated tenotomies of the stronger muscles (method of Stevens and Ranney), or, what seems more scientific, a complete tenotomy regulating the effect by a suture (method of Noyes, Webster, Thompson and the better men generally). Sometimes advancement of the weaker muscle may be tried. I desire to enter a plea for conservative treatment of these cases, giving a few reasons and citing a few cases, from which some lessons may be learned.

I. The eye muscles are not stable, varying in power from day to day. Their strength depends largely upon the general condition, amount of exercise, fatigue, hours of sleep, sexual habits, refractive error and its correction, etc. To illustrate: One of my cases showed, February 10, ½° vertical error, ½° weakness of external recti; February 16, no vertical error, but ½° weakness of internal recti; March 6, equilibrium. Another, February 14, 2° insufficiency internal recti; March 2, ½° same. A third, January 9, 1° vertical error and 1° external; February 9, none at all. A fourth, December 14, 2° insufficiency of internal recti; February 11, equilibrium; March 18,

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½° insufficiency of external recti. Snipping the muscles might have done much harm here, perhaps producing some of the very troubles said to be due to muscular insufficiency.

II. It is difficult, if not impossible, to regulate the effect of an operation. We may get too much or too little, sometimes none at all. Roosa refers to patients having double vision produced by tenotomies. Davis shows that, in the only one of Ranney's cases fully recorded, the muscles show the same strength some weeks subsequent to the operation as before, and thinks that probably true of the others, which result is at least a very disappointing return for the trouble and expense incurred. We should expect nothing more from graduated or partial tenotomies except occasional relief of spasm.

III. The effect of the refractive errors must first be thoroughly understood, an error of refraction being often the cause of a muscular insufficiency. Correction of the former frequently relieves the symptoms due to the latter, as the following cases from my records show:

CASE 1—J. C. D.—A sufferer from headaches. Examination revealed astigmatism and insufficiency of internal recti. Corrected astigmatism only. After two months reports perfect relief.

CASE 2—Miss M. W., Lebanon—Pain in back of head, etc. Found 1 D. hyperopia under atropine and insufficiency of internal recti. Corrected one-half the hyperopia only. After two months she writes: "Eyes growing stronger; no pain in back of head."

CASE 3—Miss M. B., book-keeper—Slight dizziness, pains through temples, less often frontal and occipital. External recti weak, also slight inferior rectus; a low degree of astigmatism. Corrected latter with perfect relief.

The presumption in these cases is that the muscular insufficiencies disappeared after correcting the errors of refraction, but, owing to the impossibility of getting another examination

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at the time relief was reported, this can not be proven. The following cases, however, show that symptoms usually attributed to the muscles must be due sometimes to the refractive trouble solely, the glasses correcting the hyperopia and astigmatism having caused disappearance of symptoms while the muscular insufficiency remained about the same.

CASE 4—Miss H., attendant insane hospital—Complained of dizziness and neuralgia in eyes, temples and back of head. Found and corrected astigmatism, as follows: R. E. + 1.50 D. ax. 100°; L. E. + 1.50 D. ax 80°. Insufficiency of vertical muscles ½°, and of internal recti, 2° for distance and 8° for near work were found but not corrected. At last report, four months later, the dizziness and neuralgia had disappeared, but the insufficiencies remained the same.

CASE 5—T. R., school boy—Constant headache, frequent dizziness, etc. Found hyperopia and insufficiency of internal recti. Corrected the former with marked improvement, the insufficiency remaining unchanged.

IV. It is practically impossible to be certain of the diagnosis in some cases.

What seems to be the relation of cause and effect between an insufficiency and certain symptoms may prove to be only a coincidence, as the following case well illustrates:

CASE 6—Dr. F., for whom I had prescribed glasses correcting his slight hyperopia, presbyopia and astigmatism six months before, appeared in January with vertigo, or dizziness, difficulty in concentration of mind, etc., the very picture of muscular insufficiency as given in the writings of Seguin, Hotz and others. Examination showed 1° vertical insufficiency, ½° of external recti. Prisms were added to glasses worn, ½° base down right eye, ½° base up left eye. They failed to relieve. After one month's use, equilibrium of muscles was found with no relief of symptoms, showing that the symptoms were not a reflex from muscular insufficiency. Attention was next given to his ears as a possible

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source of the dizziness, but the symptoms continued after removal of cerumen and recovery from an otitis externa of right ear. A functional heart trouble has since been determined upon (partly by exclusion) as the probable cause of the dizziness. How grave an error would a tenotomy of the ocular muscles have been in this case.

V. Somewhat akin to the preceding is the difficulty of differentiating between cause and effect in some cases of nervous prostration, especially with insufficiency of one or more eye muscles, since we have found that the latter may develop after the onset of the former, or may give rise to it.

VI. The good results reported by operators are often due to other things than the operation. Glasses are prescribed in nearly all of the cases and it is not unreasonable to suppose that they are entitled to credit for a large share of the benefits reported. In some other cases it may be merely *suggestion*, as Davis shows of one of Ranney's cases, undoubtedly a case of hysteria. The miraculous results here are about on a par with those of Christian Scientists and clairvoyants in the same line.

VII. Some patients are neurotic by birth, as Roosa says, and will never get anything but palliation. Cure of such cases is out of the question. Having recognized cases as almost certainly of this class, radical treatment is hardly justifiable.

VIII. Some cases show weakness of all the muscles. Obviously operation here is not to be thought of.

IX (and lastly). Simple measures relieve the majority of cases.

We have seen the good results of correcting the errors of refraction. A recent case of mine was much benefited by taking a ten-days' hunting trip. Cases 7, 8 and 9 show the results of prisms worn for near work only.

CASE 7—F. L. C. Earlham college student. Headache, eyeache, inability to study. Refraction apparently normal, insufficiency of internal recti. Ordered

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prisms 1° base in for each eye for near work. Three months later reported perfect relief.

CASE 8—W. T. Medical student. Subject to "bilious headache," head and eyes feel bad after much reading, also after going to theatre, etc. No apparent refractive error but 2° of insufficiency internal recti for distance and 5° for near point. Ordered for reading prisms 2° base in for each eye. After one month reports entire relief.

CASE 9—Mrs. R. L G., Bloomington. Subject to headache from childhood; past year much pain in back of head. Found hyperopia and 3° insufficiency internal recti. Ordered for reading correction of manifest hyperopia together with prisms 1½° base in for each eye, with immediate relief—whether permanent or not we can not say, having had no further report.

Cases 10 and 11 show the effect of prisms worn constantly in the more serious and less tractable variety of insufficiency, that of the external recti.

CASE 10—Miss P., nurse—Pain in head, especially back of head and neck. Astigmatism and 5° insufficiency external recti. Ordered for each eye +1.50 D. cyl. ax. 90° with prisms 2° base out. After one month's constant use reports relief especially to pain in back of head and neck.

CASE 11—Mrs. F. M. H—Extremely nervous. Frontal headache. Found myopia, astigmatism and weakness of external recti. Corrected astigmatism and half of myopia with no relief. Added prisms base out, ½° right eye, 1° left, with very marked improvement.

I wish to cite just one more case showing what I consider the most rational and satisfactory method of treating insufficiency of internal recti when patient will faithfully persist.

CASE 12—Mrs. C. M. Frequent dizziness, drawing feeling in eyes, etc. Says she had one spell of "falling unconscious." Found insufficiency of internal recti, but no refractive error until late in the treatment when a slight astigmatism was revealed under atro-

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pine. One oculist had performed four tenotomies (probably graduated or partial) on her external recti without improvement. Small doses of strychnia with prism practice two or three times a week for two months effected a practical cure, the insufficiency almost entirely disappearing and no disagreeable symptom remaining except occasional spots before the eyes.

In conclusion let me not be understood as claiming that operative treatment is *never* advisable in insufficiencies of the ocular muscles, but that it should only be resorted to when the insufficiency and symptoms attributed to it persist, when the diagnosis is reasonably certain, when the patient is not hopelessly neurotic and when all the more conservative measures above mentioned have been tried and found wanting.

DISCUSSION.

Dr. J. L. Thompson, of Indianapolis—Mr. President: What I could say would only go in confirming what the Doctor has said. I must compliment him on the presentation of this paper; he has condensed it so beautifully. Of course hours might be spent on the subject. There are persons who can not overcome a prism of ten degrees, but by using them gymnastically they can use them. By using these gymnastic prisms you will possibly only have an insufficiency of five degrees. Your patient comes to see you and you treat him; as soon as you have corrected the eye, the anomally of refraction, and given him a decent lens, giving a prismatic effect, he goes away, and comes back after while entirely cured—it may be weeks or months, but he is relieved. These very difficult persons, possibly young men going to school, or young ladies that are anæmic, come, and the doctor sends them off and benefits them very much. A great many of those cases would go to some of the parties that have a mania for cutting into the muscles. You take a person that just looks on for a little, and he considers himself a master and goes back immediately to operating on these cases and the most disastrous results often follow. In many of these cases if you operate you regret it after some years very much.

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A person should not be in too much hurry to operate on them. Then, again, concerning this partial tenotomy, it looks to me very much like humbug. It is just the same as persons with club feet. You take and snip a little out of the center, and twenty times do they operate. They put the scissors into the eye and make an incision a half a millimeter, and they put a pair of scissors in and snip, and snip, and snip that muscle, and they do it as many as twenty times; and they have about the most helpless patients that ever lived. These young men in the country would operate on them twenty times, and they produce the most miserable results that can be imagined. On the whole, I think this is the most remarkably well read and well selected paper that a person could present.

Dr. Heath, of Indianapolis—Mr. President: I have nothing to add at this late hour except to express my appreciation for the kind words of Dr. Thompson, and thank you all for your attention.

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HIP-JOINT AMPUTATION.

BY J. F. SMITH, M. D., BRAZIL, IND.

Amputation at the hip is the rarest and most fatal of amputations, and in the past, owing to faulty hemostatic measures, has only too often helped to swell the list of surgical tragedies. To Prof. John A. Wyeth belongs the ennobling distinction of robbing this operation of its greatest terror—hemorrhage. Prior to the introduction of Wyeth's method, there can be no doubt that in many localities many cases which amputation at the hip might have saved have been allowed to die, owing to the reluctance and failure of the surgeon to assume the responsibility of operating, owing to the terrorizing and disheartening Waterloos so frequently attending former methods. Thanks to Dr. Wyeth, this surgical dread is a thing of the past, and amputation at the hip may now be as serenely performed as at the thigh.

Dr. Wyeth first published his method in 1889, according to the writer's recollection.

The object of this paper is principally to call the attention of the Society to this bloodless method, with which, no doubt, all are already familiar; and, secondarily, to report a successful case of this nature occurring under my care.

The patient, J. M., aged thirty-two years, had been suffering from total loss of use of the entire left lower extremity for a year and a half prior to my first visit to him. His statement was that eighteen months before this visit he suddenly found the limb longer than the sound one, with foot everted, and inability to bear any weight, or, in fact, to use it in any manner. He suspected dislocation, but was told by a physician that it was a rheumatic trouble, and for a year and a half he had been blistering and liniments himself, with, of course, no benefit.

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As he was suffering from septic symptoms, I suspected suppuration, and upon examination found the gluteal fold obliterated, and an aspirating needle introduced into the hip-joint brought forth a large quantity of pus. In a week's time it had re-accumulated, and the patient, being decidedly septic, free incision and through-and-through drainage established. In this operation pus was found burrowing in several directions throughout the limb and gluteal region.

After two months' patient but unsuccessful efforts to drain, the patient became so profoundly septic it was apparent that he had but a few days thus to live, and, as a forlorn hope, amputation at the hip was proposed to the patient, by whom it was cheerfully accepted, with the understanding that if an excision was found possible he should have the benefit of all possible conservatism. The patient was in the worst possible condition from weakness, pulse ranging from 120 to 130.

On May 27, 1889, he was etherized, and, assisted by Drs. T. A. Glasgo, W. B. Hawkins, J. W. Gregg and Gifford Osborne, I amputated at the hip, after making an exploratory incision and finding the femur so excessively diseased as to remove all possibility of excision.

I will not weary you with the details of the operation in this instance, and will only say that Prof. Wyeth's method was used, and that not more than half an ounce of arterial blood was lost during the amputation. The patient rallied promptly from the operation and made a good recovery.

I will now draw my remarks to a close with a brief outline of Wyeth's method and a few comments. The method is about as follows: The patient being anesthetized, a mattress needle twelve inches long is thrust through the skin and fascia of the outer aspect of the hip, at a point midway between the great trochanter and the anterior superior spine of the ilium until the ends of the transfixion needle protrude about four inches. A similar transfixion instrument is thrust through the inner aspect of the limb close to the body, care being taken not to injure the saphenous vein. A stout inch soft rubber tube is then drawn several times very tightly around the limb just above the transfixion needles and tied or clamped securely. Owing to the protruding ends of the transfixion it is then

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impossible for the rubber tubing to roll down and over the amputation stump. When the constriction has been made tight enough to overcome all pulsation in the femoral artery, it will be safe to proceed with cutting. The circular or flap operation may be done, but the circular is preferred by Wyeth. A circular incision is made around the limb about five inches below the trochanter and a cuff of skin turned up to within an inch of the trochanter and the entire soft tissues cut through at this point by a circular incision, the bone sawed off and the vessels ligated. After the vessels are all ligated the remaining portion of the femur is seized with strong bone-holding forceps and held while it is being dissected out, care being taken to keep the knife, scissors or elevator close to the bone for obvious reasons.

If, however, after the blood-vessels have been secured the patient begins to sink into collapse, the operation may be promptly suspended and the removal of the remaining portion of the femur be postponed until a later day, when the patient has become sufficiently recuperated. This point is of vital importance in cases of extreme weakness, as doubtless many collapsing patients have been sacrificed by the additional time required to dissect out the head and neck of the femur. When the joint has been subjected to destructive suppurative action for some time, the removal is very easily affected. However, when the joint and ligaments are not impaired by disease it is often very difficult and tedious at the hands of the most skillful. The fact of being able thus, in cases of extreme weakness, to stop safely and efficiently with an incomplete operation, is one of the most important and desirable features of an amputation at the hip.

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SCARLATINA.

B. R. HICKS, M. D., NORTH VERNON, IND.

HISTORY.

The terms scarlet fever and scarlatina are used synonymously to designate one of the most common and fatal eruptive fevers. It was claimed by Richardson, a writer of early prominence, that the plague of Athens, 430 years before Christ, was scarlet fever of a malignant type. The first clear and undoubted portrayal of scarlet fever is found in the medical literature of the sixteenth century. Sydenham and his contemporaries, in the seventeenth century, witnessed many epidemics of this disease, and studied its nature more thoroughly, and consequently acquired a more thorough knowledge of it.

ETIOLOGY.

The evidence is strong that scarlet fever does not spring from atmospheric conditions, but is produced by a definite specific principle. That it appears in certain localities without any known exposure is attributed to the fact that the poison (microbe) is so subtle and transmissible that it is conveyed long distances in articles of clothing, merchandise, and that reading matter through the mails has been the medium of infection. It is certain that scarlet fever is communicable not only by direct exposure to a patient, but by objects that have been in the room during the sickness of the patient. Handkerchiefs or linen containing saliva or mucus, the evacuations, epidemic scales—in fact, scarlet fever virus surpasses that of any other fever, except small-pox, in its tenacious attachment to objects and its portability to distant localities. The diagnosis of scarlet fever, when not epidemic, is sometimes difficult.

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THE CATARRHAL SYMPTOMS THE GUIDE IN DISCRIMINATING FROM MEASELS.

The early symptom usually is a chill, followed by fever, pains in back and limbs, headache, fever variable in intensity, according to the severity of the type; sick stomach and thirst, pulse from 110 to 120, temperature 102, 103 or 104, skin hot, face flushed, eyes bright, throat inflamed, dry and swollen, followed with a viscicle secretion; thin fur on tongue, with pappilla enlarged and becoming prominent, making the strawberry tongue; the effervescence appearing in from eight to twenty-four hours, showing first about the neck and shoulders, spreading over trunk and upper extremities and finally over legs; rash disappearing on pressure for the moment.

TREATMENT.

We should base our treatment of each and every case upon its individual merits, considering every case, however mild, as demanding treatment, that troublesome sequellæ may be arrested.

If there is much congestion of the skin, or the eruption tardy in appearing, temperature 101, 102 or 103 in axilla, a hot sponge bath softens the skin, soothes the nervous system, and brings the eruption to the surface. Quinia and prunus virginica in glycyrihiza in proportions of quinine, gro. xvi., ext. glycyrihiza one-half scruple, syrup prunus virginica two ounces given in teaspoonful (or less, according to age) every four hours; with potasa chlorate two drams, tr. iron two drams, syrup four ounces, one-half teaspoonful every hour between quinine mixture. Listerine is used as a gargle frequently. Aconite in small doses with the quinia preparation, if needed in controling the fever; if throat is in a putrescent condition, slick, lead-colored tongue, mouth sore, and lymphatics enlarged, phytolacca is used in two or three drop doses, being governed by age; sulphurous acid in certain conditions; yellowish coating on body of tongue, if face, tongue and mucous membrane of throat present a full, purple, lifeless appearance,

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grayish coating on tongue, baptisia is indicated in three or four drop doses, according to age. The eucalyptus in the listerine is good in preventing a malignant type, and if the mucous membranes are dark and edematous, with profuse secretion of tenacious mucus from throat and nasal passages, eucalyptus is the remedy. Occasionally a case will present troublesome throat symptoms that are not benefited by any of our remedies. Here permanganate of potassium, three (3) or four (4) grains in from two to four ounces of water, spray the throat, or give a teaspoonful every hour. Symptoms of uræmic poisoning, pain in head, dry mucous membranes, pulse full and hard, require jaborandi in proper doses.

When lymphatic glands are enlarged and bode evil, iodide of potassium is indicated. All pus-secreting surfaces should be thoroughly cleansed several times daily with peroxide hydrogen, full strength or diluted, as seems best.

As soon as desquamation sets in, or even before, an inunction of vaseline and sulphur is needed. It is antiseptic and tends to keep the branny particles confined, and lessons the tendency to subsequent contagion.

For a prophylactic, sulphur comes as near as any drug; listerine I think good, the boracic acid giving it its virtue. Sulphur will prevent, or at least, keep the disease in a mild form. For disenfecting clothes, etc., eight ounces of sulphate of zinc and one ounce of carbolic acid in three gallons of water. Cloths soaked in this are made pure and inert.

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A FEW THOUGHTS UPON THE TREATMENT OF TYPHOID FEVER.

BY K. D HAWLEY, M. D., COLUMBUS, IND.

The disease commonly known as typhoid fever, from its wide distribution, peculiar gravity of symptoms and great mortality, has been well calculated to enlist the thoughtful attention of the medical profession, and to prompt to careful investigation as to its cause, pathology and treatment. As a result, researches have been varied and extensive, and the literature upon the subject has become varied and extensive, and proportionately voluminous; still, any thought, however humble its origin, the result of painstaking observation, will, it is believed, be of sufficient importance to entitle it to consideration.

It is not the purpose of this paper to burden the mind with etiological and therapeutical theories of the past, nor with mortuary statistics past or present, but to discuss briefly, and in a general way, within the bounds of our present knowledge, the causation of the disease, with its pathological phenomena, and the elucidation therefrom, if possible, of a rationally scientific plan of treatment.

It is now generally recognized that in the development of typhoid fever there must be certain essential factors, and they are, first, the pre-typhoid state, or that condition of the system favoring the reception and evolution of a specific germ—the bacillus typhosis—and second, the introduction into the organism of that microbe so potential for evil.

We are probably not sufficiently enlightened as to the exact condition of the animal economy that affords the fitting soil for germ propagation, but it is certain that when the vital powers are depressed, resistance to any morbid influence is

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very much lessened; so it is assumed, for want of more precise knowledge, that depraved life force, or more properly, lack of resisting energy from any cause, constitutes the favoring state, which, when existing, only needs the introduction into the system of the bacillus typhosis, by means of contaminated drinking water, milk or other infected food, or direct contact with exposed excreta from a typhoid subject, to develop, after an unknown and probably variable incubation period, the phenomena of the malady.

It is not necessary to take into consideration the question of selective site for the propagation of the germs; their most destructive influence seems to be exerted upon the agminated and solitary glands of the intestinal tract; but the germs themselves, or the toxic products of their evolutionary process, invade and permeate every organ of the body, affecting their structural integrity and disturbing or arresting their functions.

It is this disturbance or abrogation of function that largely determines the intensity of the symptoms of typhoid fever.

The powers of digestion and assimilation are greatly lessened or entirely suspended; the blood and organs become loaded with the waste of tissue; elimination becomes tardily and inadequately accomplished; "the alimentary canal becomes a putrid channel," its sloughing and necrosed tissues filling its lumen.

All who have had much to do, professionally or otherwise, with typhoid fever, have become cognizant of the existence in different, and in certain cases in all epidemics, of peculiarly anomalous types of the disease. In epidemics of unusual mildness, a few grave forms will present themselves, and on the other hand, in epidemics of marked severity, mild cases will occasionally be seen; so, too, in some, certain organs seem to receive the full and persistent force of the morbific influence, and in others the general manifestations are so masked as to completely obscure diagnostic signs.

Why these variations from a recognized typical standard?

It is doubtless true that the character and progress of the disease are influenced by the more or less pronounced predisposing conditions, or the more or less effective resistance of vital force, or the more or less active virulence of the specific

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germ; but it must be submitted that the most potent factor in determining its gravity, is the ability of the organism to more or less rapidly and completely rid itself of the poisonous material resulting from the process of microbic evolution.

The theory of cause points unerringly to preventive possibilities; the pathological data, while they impress the mind with the infinite uncertainty and unreliability of simple routine symptomatic treatment, most unquestionably indicate rational therapeutics.

The various organs and tissues of the body, becoming disturbed in structure and function by the toxic invasion, are poorly and inadequately supplied with material to repair structural waste and restore functional activity by the vitiated vital current. Digestion and assimilation are not at all, or but imperfectly accomplished, and there ceases to be a demand for supplies that can not be utilized, and which, if forced upon an unwilling stomach, only furnishes material for decomposition, the products of which add greatly to the weight of an already overburdened organism. The partial or complete withholding of food, then, until such time as it can be properly received and appropriated, seems certainly indicated. For the purpose of rendering the putrescent material in the alimentary canal, as far as possible, innocuous, some one of the various antiseptic medicines may be administered, and, supplemented by lavation of the lower bowels, should prove helpful. Suitable means to promote elimination by the various emunctories must be, in accordance with the preceding view, of the utmost importance. To increase elimination by the skin, frequent baths of varying temperature are needful, and have the incidental advantage of relieving a perturbed nervous system and reducing body heat.

To aid in the elimination by the kidneys, all the sterilized water to drink that is asked for may be given, and when mental hebetude is present should be urged freely, as by its fluidizing properties, its promotion of osmosis and its cleansing power, it affords the means to supplement nature's efforts to rid the body of hurtful matter. The nitrate of potassa is an old and valuable remedy, yielding most gratifying results, not so much for its diuretic effects, but because of its excellent in-

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fluence upon the mucous lining of the bowels, seeming, in addition to its antiseptic properties, to relieve capillary tension and promote glandular activity. Elimination by the bowels should be aided, when necessary, by appropriate measures. Nature's efforts in this direction, in the form of diarrhea, should be interfered with as little as possible, and only actively when it becomes palpably hurtful.

It will be noticed that nothing has been said of the so-called antipyretics, and nothing, in the writer's opinion, can be said in favor of their exhibition in typhoid fever. All that can be accomplished by their use can be more safely affected by other means—more safely, because in this disease, as probably in no other, a tendency to general ischesis exists, and these medicines seem to favor and increase such tendency.

The plan of treatment as advocated can be summed up in few words: withholding food until such time as the system indicates its ability to appropriate it as nutriment; rendering the contents of the alimentary canal as little harmful as possible, and, most important of all, carefully and judiciously aiding the system to eliminate the poisonous products of germ life. As results, it is believed, incidental and accidental complications will be far less frequent, and, when occurring, prove more amenable to treatment; the symptoms will, in a degree, be shorn of their grave portent; the duration of the disease appreciably shortened, and convalescence entered upon in a more satisfactory manner.

DISCUSSION.

Dr. Loftin—Mr. President: This paper is of too much value, and the subject is of too much importance and interest to allow it to pass without notice. There has been so much improvement in the treatment of typhoid fever in the last decade that it is almost a new branch. Years ago I commenced hunting for something that would disinfect the alimentary canal. We had presented to the profession medicines that were claimed to be very effectual. I recollect Dr. Wilson, of Philadelphia, gave us the German Specific composed of tincture of iodine and carbolic acid. It had a very salutary effect in disease in

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disinfecting the bowels, but it was not perfect by any means, nor do I think that we have attained perfection in that yet, though we have medicines at the present time that by their judicious administration will so disinfect the alimentary canal that we find it very seldom necessary to apply or use any antipyreties. Once you get the alimentary canal fairly disinfected where the disease seems to have its seat; in fact, the fever seems to be produced by the absorption of ptomaines from the alimentary canal. By disinfecting the alimentary canal the fever never attains the height that it does when it is neglected. In the last few years I have relied very extensively upon disinfectants, and have been very seldom disappointed in their effects. In the late work of Lea's on Therapeutics, thymic acid is recommended as one of the best remedies. I have used it for the last two years and find it an excellent remedy. Napthol, however, taking it altogether, I believe is the best disinfectant that we have. I have had patients to whom I have given napthol in proper quantities whose temperature would come down to normal, and I would conclude that I was mistaken in my diagnosis and leave the remedy off and the fever would within six hours come up again to probably 102° or 103° and would keep on ascending until it was resorted to again; so that I have time and again tested the effect of napthol in that direction and in that way, by leaving it off for a day or so to see what the effect would be, after the temperature was reduced to something near normal. If you, as soon as you can, get your patients under the influence of napthol and keep them there, the temperature hardly ever goes above 102°. It will range from 100° to 102° as a general thing, but it very seldom goes above 102°. In the administration of napthol there is one disadvantage we frequently meet with, and that is its effect upon the urinary organs. It will, if you administer it in too large doses, or give it too frequently, produce strangury in many instances, which is disagreeable; but as I remarked I have been in the habit of giving napthol in combination with thymic acid, and by giving the two alternately we can get the effect of both without overdoing the matter with either one of the drugs. Of course in connection with those disinfectants we always find it necessary to administer other medicines, and as

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a general thing we do, to fulfil the indications as they come up. Diet, in the treatment of this disease, is one of the things that we should always look to and be very careful not to give the patient anything that is likely to cause irregulation in the alimentary canal. Even the administration of milk is frequently overdone. I have seen patients where they would take sweet milk in quantity sufficient to form a coagulum in the alimentary canal that would excite fever. When the milk was left off the fever would subside again. So that even in the administration of the milk diet it is necessary very often to be cautious.

Dr. W. J. Fairfield, of Anderson—Mr. President: I was very much pleased with the paper. I hardly agree with the essayist in denouncing the chemical antipyretics in this fever. I agree with him in the use of internal antiseptics. I do not agree with him in the estimate he places on the use of water in this disease. The essayist spoke of the use of baths at various temperatures and of course elimination by the skin, and spoke incidentally of the nervous system in connection with reducing the fever. The most important and principal use of the water, in the treatment of typhoid, is its effect upon the nervous system. We all know that the point of attack is the nervous system from the beginning; from the earliest period we get a very decided disturbance of the nervous system and on down to the finish. The first effect of the cool bath is to stimulate and start up the action of the nervous system. In that way we get the best effect of the water and incidentally we reduce the temperature.

Dr. Joseph A. Stilwell, of Brownstown—Mr. President: This is a wide subject, and I doubt if there is any gentleman here but what has had a very wide experience in it. I have had it myself, and there is one remedy that is perhaps very little thought of that I use. I make it the turning point; the use of a digestive, the use of pepsin. Of course I do not use this when the fever is very high. If I have any routine at all it is to give doses of calomel, and maybe they will be repeated, and get the fever down by the use of antipyretics, and then I almost exclusively rely on digestives, as pepsin. Other treatments, of course, I follow, but if there is any routine about my treatment at all that is it.

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Dr. Hawley, of Columbus—Mr. President: It seems some portion of the paper is somewhat misunderstood. For the sake of brevity I curtailed my theory with reference to baths. The doctor refers to the varying temperatures. I put that in incidentally, since cold is a relative term. To a patient with typhoid fever with a temperature of 104, water at a temperature of 98½ will be excessively cold. You put that patient in excessively cold water—ice water—as our German confreres do, and there is such a shock given the nervous system that it frequently results fatally. I want to emphasize that point, that this bath should be in reference to the temperature of the patient, not with relation to the body heat of the physician, but with relation to the body heat of the patient. Another thing I want to emphasize, and that is, refrain from excessive feeding. If I had time and opportunity I could detail a series of cases where the withholding of food was followed immediately by favorable results, even after the time for supporting treatment. It is because the results from decomposition of the food put into the stomach which can not be utilized that many of our troublesome symptoms result. And frequent baths—not too frequent. I give them principally to promote elimination from the skin, and incidentally they relieve the nervous system.

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THE CONTEST AGAINST INFECTION.

BY THEODORE POTTER, A. M., M. D., OF INDIANAPOLIS.

Mr. President and Members of State Medical Society:

I present herewith the fourth annual report on bacteriology. At the time of writing the third report it had become evident that bacteriology was progressing chiefly in the direction of discovering the channels through which the self-limitation of and immunity from infectious diseases was brought about. As stated in the report of last year, enough has been learned to establish the principle that the effects of bacteria in the body are produced by chemical substances resulting from the growth of the bacteria. Sufficient also had been learned to show that self-limitation and immunity are in some way the outcome of such substances. The question, therefore, became: *What is immunity, and through what channels and by what agents is it brought about?*

At the outset we must recognize two forms of immunity: first, natural immunity, by which is meant a natural insusceptibility of certain animals to certain diseases; second, acquired immunity.

Acquired immunity may be brought about in three ways: first, by an attack of the disease; second, by inoculation with an allied disease or with the disease modified by passing the virus through another animal; third, by the virus modified by culture outside of the body. The question is, how are these results brought about? Among the various theories are two which have assumed prominence: first, the phagocytosis theory of Metschnikoff, which supposes that certain cells of the body are active agents in the warfare against infection. In following out this theory Metschnikoff has displayed a remarkable degree of ingenuity, patience and skill, and has brought

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out some exceedingly interesting and important facts. The other theory is that the protective agents are to be found in the blood and body juices. As the result of the work of the last year or two it must be said that opinion tends strongly in the direction of the second view. Von Fodor finds, as the result of a series of experiments and researches, that arterial blood has more anti-bacterial influence than venous; that fresh blood has more influence than old; that the maximum anti-bacterial power of the blood is at the temperature of 100° to 104° F.; that the individual susceptibility of an animal to an infectious disease seems to be in direct relationship to the germicidal power of its blood; that various chemical and other agents diminish while others increase this power, the most marked increase being brought about by carbonate of sodium and potassium. He concluded that any agent which increases the alkalinity of the blood increased the resisting power of the organism against bacteria. A series of experiments made on this basis seems to prove the correctness of the theory.

Naturally, as the result of these discoveries, the attempt has been made to find a bactericidal agent in the blood. Hankin has perhaps been the leader in this special work. He believes that he has established, for certain animals at least, that the blood contains a substance of a proteid nature which belongs to the globulins and has certain bactericidal properties. Following this supposition he was able to neutralize inoculations of anthrax by injection of a solution of this globulin. The tendency of investigation is unmistakably in at least the general direction of Hankin's view.

These albuminoid substances have been called defensive proteids, and investigation seems to indicate that they may act in one of three ways: first, by killing the bacteria, that is, microbicida!; second, by attenuating or weakening the bacteria; third, by neutralizing or destroying the toxines. In justice to the work of Metschnikoff it must be said that this blood serum theory does not necessarily disprove his phagocytosis theory, for it is still quite possible that self-limitation or immunity, or both, may result from these defensive proteids acting upon or through the cells.

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Behring and Kitasato found that the serum of rabbits vaccinated against tetanus had the property of destroying the toxine of tetanus in guinea pigs, so that guinea pigs might be cured of tetanus by injection of rabbit serum taken from vaccinated rabbits. The same authors proved a similar fact in regard to diphtheria. Already it is reported that clinical use has been made of this discovery in actually curing some six or seven cases of tetanus in men. The first experiments in this direction were made by transfusion of the whole blood Subsequently it was found that the protecting properties resided not in the corpuscles but in the serum.

It is to be noted here that these defensive proteids are not general in their action, that is, serum, or a defensive proteid derived from it, which will protect against one disease will not necessarily protect against others. We can not, therefore, at present entertain the idea of discovering a universal bactericidal agent of blood serum, sufficient at least for use as a general protective. Hankin suggests a classification of these defensive proteids into two groups: first, those existing naturally in animals, and these he calls sozins; second, those existing in animals artificially made immune, which he calls phyloxins. For sub-classes he suggests the prefixes mico- and toxo- to indicate sozins or phyloxins which destroy bacteria or which destroy toxines. Emmerich in summing up his researches claims to have established two important principles: first, that the cause of artificial immunity is an anti-bacterial substance which is not injurious to the body; and second, that the protective fluid for one class of animals may be applied against that particular disease in other classes of animals. For instance, that the fluid from protected rabbits could be successfully used to cure infected swine. He claims, says Ernst, that he has by these experiments entered upon the first stage of a certain and rational treatment of infectious disease and urges it to be the duty of all to strive for the attainment of an ideal that must complete the discovery and manufacture of the true anti-bacterial material. The time is perhaps not far distant when such a material will be in the hands of all who are called on to treat infectious diseases. Other diseases besides swine fever are already under investigation. It will be

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noted by the study of this whole matter that the tendency now is to use the natural laboratory, that is, the living body, rather than artificial cultures to secure these protective agents.

In summing up this matter, in order to indicate the present status of the contest against infection, I make the following brief statement as an indication of the best present opinion:

First. The infectious diseases are due to living agents.

Second. Bacteria injure the body and cause sickness through the production of poisonous substances called loosely ptomaines or toxines.

Third. Self-limitation and immunity are in some way, directly or indirectly, brought about by the action of such chemical substances, the protective agents, however, not being necessarily the same as those which cause the sickness.

Fourth. These protective agents are found in the blood serum and body juices.

Fifth. Their protective action may be a direct one, or it may be exerted through certain cells called phagocytes, the former seeming at present the most probable.

Sixth. Natural or acquired immunity may be transferred from one animal to another by the transfer of blood serum.

Seventh. Following out the indications from these facts sufficient practical success has been achieved to make the most conservative almost an enthusiast, and to furnish ground for a rational hope and expectation of further success.

The following prediction is made by Ernst: "In spite of the great number of unknown points that still surround this new theory of immunity by defensive proteids it can already be predicted that it will come out victorious in the struggle in which it is engaged, with the numberless hypotheses and the old prejudices that surround and encumber this branch of general pathology. It will be victorious, for it has already given certain proofs of its importance by vaccinating and curing animals by means of these defensive proteids.

A brief review now of work done with some of the specific bacteria:

1. *Cholera.*—Nothing has really been done to overthrow Koch's previous work. Klein, of London, has expressed skepticism in regard to the comma bacillus of cholera as a specific

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organism, quoting the investigations of Cunningham, in India, who claims to have recognized several different species of comma bacilli in cholera. The value and meaning of these claims remain as yet doubtful. It is interesting to note the experiment of Pettenkofer, who voluntarily swallowed pure cultures of comma bacilli brought fresh from Hamburg. He did this to show his contempt for these organisms as the active cause of cholera. The result of his self-inoculation was a moderate sickness, which he asserted not to be cholera, but which less prejudiced authorities believe to have been simply a mild cholera, the discharges from the bowels containing almost pure cultures of the comma bacilli. Another experimenter, actuated by the same motive, produced in himself similar results, except that the sickness was more severe. It is of practical interest also that, upon the approach of cholera to New York last summer, the presence of the comma bacilli in the dejections was successfully used as a test of the existence of the disease in suspected cases.

2. *Cancer.*—Many observations have been made of peculiar bodies in cancerous tissue. These have mostly been placed in the class of coccidia. Their investigation is so difficult, artificial cultivation so elusive, and their relation to the tissue cells so peculiar, that it is difficult to decide their biological position. The question is, therefore, still unsettled. Domergue is inclined to believe these coccidia to be simply cell transformations. There are, however, those who take a different view, who believe them to be true parasites.

3. *Dysentery.*—Evidence upon the pathogenic properties of the amœba coli have been accumulating. Kartulis claims to have secured pure cultures of the amœba in decoctions of fresh straw. He claims also to have made successful inoculations in cats. Owing to the work of many foreign investigators and of Councilman, Welsh, Osler and others in America, the diagnostic value of the amœba coli seems to have been well established, as also its causative relation to other than dysenteric lesions, especially to hepatic abscesses.

4. *Diphtheria.*—No important change has occurred in the bacteriology of this disease. Previous opinions have simply been strengthened. Recent investigations seem to show that

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the diphtheria bacilli are secondarily diffused through the body more frequently than has been heretofore supposed. The most important work on diphtheria has been that already mentioned, namely, the successful protective and curative experiments of Behring and Kitasato.

5. *Erysipelas.*—The uncertainty as to the identity of the streptococcus of erysipelas and the streptococcus pyogenes remains. Fraenkel, among others, has done work which seems to give further additional proof of the identity of these organisms.

6. *Gonorrhea.*—I have only to repeat and emphasize a statement made in a former report, that while the discovery of the gonococcus may be looked upon as very strong evidence for pathological and clinical purposes, its medico-legal value is doubtful. We are not in position as yet to make absolute statements in court as to the diagnostic importance of the gonococcus.

7. *Small-Pox and Vaccination.*—Renewed interest has been taken and renewed activity shown in investigating the question of the identity of variola and vaccinia. Unmistakably the tendency of experiments is to confirm the view that vaccinia is nothing but variola modified by passing through the cow. This might and would seem strange, were it not for the fact that the last ten years has shown that the virus of many other diseases may be much modified by passage through the body of certain animals. It is quite probable that we shall soon have established the fact that variola is inoculable upon the cow, if the inoculation is properly made—that such inoculation becomes changed after efficient repetition into vaccinia, and that inoculation in this way affords an always controllable means of obtaining animal vaccine.

8. *Bacillus Pyocyaneus.*—The microbe of green pus has arisen in prominence and importance, chiefly because of its remarkable influence in arresting the development of anthrax when inoculated at about the same time as that virulent germ.

9. *Malaria.*—The diagnostic value of the malarial plasmodia remains high; indeed, the best opinion tends to make it absolute. The work of Osler, Welsh and Councilman in this country, and of Golgi, Rosenbach and others, among foreigners, has continued. Rosenbach has shown the interesting fact that the

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malarial parasite can be kept alive for at least forty-eight hours in the digestive canal of the leech.

Purulent Pleurisy.—The interesting subject of purulent pleurisy has continued to attract investigation. The result is a tendency to include all, or nearly all, purulent pleurisies in three groups: First, those due to the Sternburg-Fraenkel pneumococcus; second, those excited by the pyogenic staphylococci; third, those due to tubercle bacilli. Microscopic examination or cultivation or inoculation experiments will show the character of the case; and of this knowledge real, practical, clinical use may be made.

11. *Tetanus.*—The previously expressed views as to the specific nature of the tetanus bacilli have been confirmed. Every one now believes that the specific bacterial origin of this disease has been established. The most interesting outcome of recent work has been the prevention and cure of tetanus by the use of blood serum or defensive proteids. Mention has already been made of the apparently successful practice of such cure upon men.

12. *Tuberculosis.*—Time only increases our admiration of the marvelous piece of scientific work revealed in Koch's announcement of his discovery of the specific cause of tuberculosis. Time also only adds emphasis to the practical diagnostic value of this discovery and the importance of its daily use. Some improvements have been made in the methods of examining sputum which enable us to reach certainty in otherwise doubtful cases. These are, first, liquefaction of the sputum by the addition of a small quantity of dilute sodium hydrate. Such liquefied sputum is allowed to settle in a conical vessel, and the sediment examined for bacilli by the ordinary means. Second, the addition of liquid carbolic acid precipitates the bacilli-containing masses in the sputum, which may be examined with increased prospect of finding the few bacilli present. Third, the centrifugal machine has been applied for a similar purpose, just as it is applied to secure the rapid deposits of urinary casts.

I would, in this connection, emphasize the value and simplicity of inoculations upon rabbits or guinea-pigs for diagnostic purposes in otherwise obscure cases.

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So far as we can now tell, the tuberculin experiment of Koch to arrest tuberculosis has been a failure. We now know more of the reason for expecting such failure than we did when the treatment was promulgated. However, no one conversant with the progress of bacteriology supposes for a moment that this failure will, or should, dishearten us or arrest further experiment in this and other diseases. Through the work of Hunter, Cheyne, Klebs, and others, it has been shown that even Koch himself was ignorant of the substance with which he was dealing, the two former authors having thought to modify and improve Koch's tuberculin by excluding some of the harmful constituents. Klebs has claimed to accomplish the same result, and considerable interest has been taken in his modified tuberculin, the so-called tuberculo-cidin of Klebs. In spite of these claims it is evident that the results gained by following this particular line of experiments have not been great. It evidently yet remains to find an agent which approaches a specific for tuberculosis. Nevertheless, bearing in mind the remarkable developments of the last few years, the great progress made in clearing up the mystery of proteids, and remembering the astonishing antagonism which may exist between different bacteria, even between harmless and virulent ones, there is certainly room for hope. I believe that the day will come, it may come soon, it may be long delayed, but the day will come when tuberculosis will be as thoroughly at our mercy as is small-pox to-day. It will have sunk to the insignificance of a beaten and imprisoned enemy. I hope and expect to see it before my hair has grown gray.

The question is often asked, what are some of the good books in English on bacteriology? It will, perhaps, be of service for me to answer this question. The best work in English, covering the whole field, clear, intelligible and authoritative, moderate in price, is, I believe, Lindsley's translation of Fraenkel's Bacteriology. I believe that this will prove the most satisfactory book to the average intelligent physician. Sternberg has recently issued a splendid work upon this subject. It is much more expensive and also more elaborate than Fraenkel's, being finely illustrated, and no one will regret purchasing it. A prominent British work is that of Crookshank. It is chiefly

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valuable for its admirable colored plates, but the descriptive parts of the work are not good. Upon the subject of ptomaines and leucomaines the work of Vaughan and Novy is the latest and probably the best in English. There are other works which are good, among them, that of Ball and Abbott; the latter, however, does not cover the whole ground. Those who take the Annual of the Universal Medical Sciences, will always find an excellent and satisfactory digest of recent progress in the bacteriological section.

DISCUSSION.

Dr. T. L. Leech, of Crawfordsville—Mr. President: The expert potter can make out of the same clay a vessel of honor or dishonor. I want to congratulate this Society upon having a Potter who, in this case, out of this matter, will make a vessel of honor, teaching us a remedy when our loved ones have tuberculosis, diphtheria and scarlatina, so that we will not stand in awe of those diseases as we do now.

Dr. Gardner, of Bedford—Mr. President: For a good many years I have paid more or less attention to bacteriology, and I believe that I am on record as being the original discoverer of the bacilli that produces milk sickness in a paper that I read before the Tri-State Medical Society in 1878 or 1879, at Evansville. I mentioned the fact that the previous summer I had some cases of milk sickness; extracted the blood and examined it immediately while fresh, and in that I had witnessed the attacks of the bacilli on the red blood corpuscles. Of course the phagocytes had filled up with the bacilli, but they were unable to take them all. I have seen as many as forty or fifty of those attach themselves to a single red corpuscle, and they would be in rapid motion. The bacilli were very active, and the interspace between the blood corpuscles in the field of a one-tenth objective showed innumerable millions. My tenth shows an area of light of about seven inches, that is, by its magnification, and the actual space would be a transverse section of a very small cambric needle, making say twelve or fourteen hundred diameters; and in all that space you would see unlimited millions of them rushing around, and attaching

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themselves to the red blood corpuscles, and keeping up a rocking motion on them, and they seem to have an affinity for the coloring matter of the blood, and the corpuscles would become decolorized under their attacks. It was a wonderfully instructive thing. Aside, I think, from the secretion of the ptomaines they make, I am satisfied that their action in deoxidizing the blood, and their mechanical action also, has a great deal to do with the morbific process. I have been for a great number of years of the opinion, and, before this medical society have taken the ground, that ultimately cancer would be found to be a parasitic disease by reason of its analogy to the parasitic diseases that attack vegetation. They are so analagous to cancer that we may reasonably expect to find, and I think in the end it will be proven, that cancer is a parasitic disease.

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AUTO-INFECTION FROM THE INTESTINAL CANAL.

BY J. E. VIRDEN, M. D, INDIANAPOLIS.

My understanding of auto-infection from the intestinal canal is the absorption by this canal of toxic matters generated therein. Also I believe that auto-infection occurs primarily and often entirely from the large intestine, although the lower part of the small intestine, and possibly in a few cases its entire length, may be the source of a part of the poisonous matter.

It will be impossible for me to tell you definitely what these poisons are; and although our present physiological and pathological knowledge of the intestinal contents is quite limited, yet it is not impossible to suggest something of their probable natures. The physiological contents of the large intestine consist of the refuse portion of the food taken, along with the excrementitious portions of the digestive fluids—water, mucus, gases, etc., besides animal alkaloids, and numerous varieties of micro-organisms, with their known and unknown products. All these are physiological, although some of them are toxic when introduced into the circulation; but so long as the system retains its equilibrium, they are thrown off as fast as produced, and it is only when these toxics are produced in excess, or are not thrown off rapidly enough, or are in some way rendered more absorbable, that they cause trouble, and, of course, they have then become changed from a physiological to a pathological factor.

During the last few years there has been much chemical and microscopical study and investigation of the pathological elements found in the intestine; but as most of this investigation has been to find the causes of acute diseases, such as typhoid fever, cholera, etc., and but very little of this regarding the

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subacute and chronic, I have been able to find but little literature on the pathology of this subject, as I wish to exclude all the more acute poisonings.

It is difficult to draw the line between the physiological and pathological, as regards the intestinal contents, since the various factors differ in different individuals, and also there are many such as the animal alkaloids or leucomaines, whose physiological qualities and characteristics are unknown to us. Also the increase of some fecal factor or factors, which are known to be non-toxic in themselves, may allow a more vigorous action of others which are poisonous. An increased amount of water in the feces may be conducive to the solution and absorption of certain toxics. A decreased watery element may lesson the normal intestinal antisepsis by preventing the solution and dissemination of salts, etc., which should act as checks to the developing of poisons. Also we do not know that it matters whether the feces are acid, alkaline or neutral in reaction. These and many more probabilities are unknown to us. I am inclined to believe that time and study will unfold many of these unknown things, and that it will not be many years until we will look into this great human sewer for the source of many troubles, some of which are now called functional for want of a better name.

Constipation, with its host of causes, is usually associated with, and may properly be called, one of the causes of auto-infection; for by this means the feces are held in the bowel for a longer time, thus allowing more extensive decomposition. Where the constipation is marked it is not difficult for us to attribute a number of symptoms and conditions to it, whether we consider them as toxic or simply mechanical results.

It is when we meet those cases with some of the symptoms of the constipated, but at the same time having one or two full stools daily, that we too often fail to associate cause and effect. In these cases there is a prolonged retention of feces; there has been a gradual filling up of the bowel, and now, as fresh excrements are added daily, a portion must necessarily be discharged. Such evacuations are not natural, but are a kind of fecal overflow similar to the overflow from an over-distended bladder. Under these conditions there is a prolonged retention of feces

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in the intestine. This gives the time and a good culture medium for increased production of the normal intestinal microorganisms, while foreign germs which have been introduced have an excellent opportunity for development.

At the same time fermentation is increasing the gases, some of which are known to be harmful when absorbed.

Putrefaction must necessarily be present in this wonderfully infected mass, and it adds various toxic ptomaines, etc , to the cup of poison already well filled.

Thus we can readily see that there is opportunity enough for auto-infection from matters of which we already know something; and there is but little doubt that the researches of the future will reveal many pathological elements which thrive in the intestinal contents, besides giving us clearer ideas of those already discovered.

Auto-infection more frequently affects women than men, because of their occupations, habits, etc. It is not limited to any particular age, but its symptoms are most marked between puberty and fifty years, or that age when the nervous system is most active.

Having endeavored to suggest the natures of some of the toxic matters which may be generated in the intestine and absorbed therefrom, I now hope to point out some of the symptoms or conditions produced.

EFFECTS ON THE BRAIN AND NERVOUS SYSTEM.

Probably the most common and often the first effect of auto-infection on the brain is a drowsy, sleepy or sluggish condition, which is very similar to that produced by remaining for some time in a poorly ventilated room; the latter being a direct poisoning by the excreta of the lungs and skin, while the former is a fecal poisoning. When such patients are unemployed they easily fall asleep, but sleeping does not relieve them, and they waken unrefreshed; late experiments on animals by Schultz demonstrate the soporific effects of sulphuretted hydrogen gas when inhaled, even in a very dilute condition. This same gas is normally found in the intestine in small quantities, but is increased often by fecal decomposition; hence, he

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draws the conclusion that the absorption of this gas is a prominent factor in producing this auto-infective drowsiness. It is also known that some of the new hypnotics, such as sulfonal, give off sulphuretted hydrogen while decomposing in the body, and this same experimenter concludes that the effects of such drugs are due, in part at least, to the absorption of the sulphuretted hydrogen gas thus generated.

Headache is another frequent symptom. It may be of a severe neuralgic type, but is more commonly of a continuous dull form, lasting often for several successive days. It is often first noticed when the patient wakens in the morning. It may be a migraine, hemicrania, or of the occiput, or vertex alone, but is usually more diffuse.

Vertigo may accompany the headache and drowsiness, and when present it often worries the patient more than all other symptoms.

These patients with toxic absorption are not able to do their usual amount of mental work. Memory may be temporarily defective. Prolonged concentration of thought is impossible. Nervousness and irritability of temper develop early.

It is well known that insane patients are almost invariably constipated; also that the condition of a certain portion of these can be improved by a thorough cleansing of the alimentary canal. At the last meeting of the American Neurological Association, Dr. Kellogg, of Flushing, Long Island, read a paper on the "Toxic Origin of Insanity;" and among other things he spoke of the auto intoxicants, the ptomaines and leucomaines, as probable causes of insanity. From the evidence produced by this writer and others, it seems probable that auto-infection associated with a previously weakened or disturbed mental condition, is a sufficient cause for some cases of insanity.

Epileptics can at times be relieved by free catharsis; and it has been noticed in some cases that the frequency and intensity of the epileptic seizures are increased by putrefactive and other changes in the intestinal canal. Putrefaction in the intestine was discussed as one of the causes of so-called idiopathic epilepsy, by Dr. Herter, of New York, in a paper which was also read before the American Neurological Association, last June.

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In his observation of twenty-nine cases of *grand mal*, which would be usually classed as idiopathic, he found twenty-one with unmistakable evidences of excessive intestinal putrefaction. A large portion of these showed at least a general correspondence between the seizures and the degree of fecal decomposition.

Neuralgia is known to have many causes, but it is often difficult to tell which one of them is acting in a given case. Many neuralgies have an auto-infective origin; these have no special features, nor are they limited to any particular region. Probably their most common locations are the branches of the trifacial nerve and the sciatic From a few observations I believe this to be the most frequent cause of neuralgia of the stomach. As a rule we are poor hands to cure neuralgias, because we do not ascertain the cause. If we should examine more carefully we could often find something at fault. and this something is not infrequently the digestive apparatus. Prof. Kisch has found this such a common etiological factor that he has urged, on more than one occasion, the systematic use of purgatives in the treatment of neuralgia. By this means he has been able to cure long-standing cases of hemicrania, sciatica lumbo-abdom inal, and facial neuralgias that have resisted all other treatments tried.

The effects of this poisoning on the *circulatory system* are probably not so numerous as those of the nervous system. These patients are usually anæmic to some degree. The pulse is slow and full in the earlier stages corresponding to the general sluggish condition; but later it may become rapid, feeble, etc., when the general muscular and nervous weakness has caused the heart to lose its force and regularity. Palpitation frequently occurs to annoy the patient. The heart becomes excitable. The veins of the extremities are often turgid, and those of the legs readily become varicosed.

EFFECTS ON THE DIGESTIVE SYSTEM.

The tongue becomes large, flabby and coated. The appetite is poor, but there may be a craving for foods, which are hard to digest, or for articles which are indigestible. Nausea may

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occur at intervals. Any of the numerous symptoms which are commonly considered as dyspeptic may be present. Hemorrhoidal troubles may always be expected. Many or all of the digestive fluids seem to be decreased in quantity, and are probably deficient in some of their essential properties.

The effects of the *respiratory system* are chiefly secondary. The breath has an offensive odor. The respirations may be more rapid because of the pressure of a distended abdomen, or because of a poor pulmonary circulation and deficient oxygenation of the blood. Any pulmonary lesion will be aggravated by the association of auto-infection. In these patients the nose and throat specialist finds plenty of work on congestions, hypertrophies, and new growths.

The *skin* takes on a pale or muddy appearance. Its secretions are changed, and may become offensive. Various forms of eczema and other chronic skin lesions are frequent and persistent.

Thus I have endeavored to name some of the symptoms and conditions which are produced or intensified by the action of those poisons which are generated in the bowel. Whether these poisonous substances are ptomaines, leucomaines, gases, organic, or inorganic matters, they enter the circulation and are distributed to all parts of the body, debilitating the various organs in proportion to their several powers of resistance. Slowly that organ which is most unstable first yields to the toxic agents and takes on an action which is pathological, in part, at least. Thus the physiological combination is broken, and the functions of those organs which formerly produced the equilibrium known as health, are now changed, and disease is the result.

When this tearing down process especially affects the digestion with loss of appetite, nausea, etc., it is commonly called "biliousness." Under another, but similar, train of symptoms, it is too often termed "malaria," although there may not be a malarial germ present, and strict anti-malarial treatment fails to correct the trouble. These terms, "biliousness" and "malaria," are used to cover a vast amount of medical ignorance. So near as I can ascertain, the term "biliousness" has never

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expressed any very definite condition; but the use of the term "malaria" has no such good excuse.

After deciding that we have a case of auto-infection, what are we going to do with it?

The first treatment indicated is to stop the abnormal production of these toxic matters and cleanse the alimentary canal. This may be accomplished, 1, by the removal of the intestinal contents by the use of laxatives or cathartics; 2, by the use of intestinal antiseptics and tonics. But, in fact, these two means are generally combined, because the laxative treatment is most satisfactory, and by using this there is an increase of the abdominal secretions which are aseptic if not antiseptic. If a mercurial is given we get a second antiseptic effect, which is the direct action of the drug used.

Such simple cathartic action followed by a few doses of a bitter tonic is generally all that is required in these sub-acute "bilious" attacks, because the auto-infection is only of short standing.

A more troublesome class of cases is that in which the disease is less acute but of longer duration. In these cases the poison has been less abundant, or less virulent, or the patient less susceptible. Such patients have been longer constipated; the bowel has lost much of its tonicity, and its secreting and absorbing powers are more or less changed. From this class the general practitioner and the various specialists have many calls, but a few days' treatment can not cure, so they pass to another and another until they reach the quack, who makes them believe a great deal, gives a little medicine, and takes their cash and testimonial.

There is another class of patients who, according to the usual acceptance of the term, are not constipated. They have daily evacuations of the bowel, but yet complain of many of the symptoms of the constipated. These are the conditions which I have above termed fecal overflow. In these cases we readily note that the abdomen is distended and solid. If a cathartic is administered an unusually large amount of fecal matter is passed This mass has been accumulating for weeks, or even

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months in some cases, and, at the same time, undergoing decomposition and impregnating the blood with the poisons generated.

To whichever of these latter two classes the patient may belong, the single cathartic treatment will give no more than temporary relief, but to thoroughly cleanse the bowel and to allow the entire economy to throw off the accumulated toxic matters, a continuous laxative-tonic treatment for several weeks or even months, is necessary. I know of no specific remedy for these classes of cases, but most of them should first receive a cathartic, and this be followed by a laxative tonic until the bowel is thoroughly cleansed, and there are one or two normal evacuations daily. Some of the preparations of cascara often act well as laxatives. In other cases good results can be gotten from the anti-constipation pill composed of aloin, strychnine and belladonna, or others of a similar character. That prescription which has been most useful to me in the greatest number of cases is a pill or capsule containing lactate of iron, extract of nux vomica and purified aloes, given three or four times a day. This is one of the few successful laxative-tonic preparations containing enough iron to be successful.

I have said nothing of the use of the drugs known as intestinal antiseptics, because they are seldom needed if the laxative-tonic treatment is properly conducted. If an antiseptic is needed salol is the best, in my experience.

Besides this general treatment there will be at times need of local treatment of such complications or consequences as hemorrhoids, enlarged tonsils, nasal troubles, uterine disorders, etc. These troubles usually improve on the general treatment, but the local medication may be necessary to bring them to a non-offending condition.

DISCUSSION.

Dr. A. W. Brayton, of Indianapolis—Mr. President: It would be too bad to let so excellent a paper, one of the best read before the Marion County Medical Society on medical subjects during the year, go undiscussed, and I scarcely think a paper which

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brings up the subject of constipation and cathartics will go undiscussed, because it is one of the practical questions we naturally pay attention to. I am extremely interested in this paper; it enforces the early maxim of keeping the feet warm and the head cool in order to keep the patient well. The emphasis of the paper is upon fœcal obstruction and the absorption of the various toxic products that overwhelm the nervous system. My friend Dr. Bond, of Richmond, had been at work upon the same subject for some years, but owing to some bent of his mind, or of the constitution of his patients, Dr. Bond's attention was attracted more particularly to the urinal overflow, if I may borrow the term that Dr. Virden has used. I followed Dr. Bond's three or four papers, year after year, read before this Society, with a great deal of interest, only fearing that in his enthusiasm he might impose on us a new term in nosology, for a series of diseases that were not Bright's disease, but were allied to it. It is easy for us to get into a rut in practice, and it is well for us sometimes to do so. I wish our teachers of therapeutics would teach better on the subject of cathartics, and write more about cathartics. Still we sometimes find cases where an immense amount of fœcal impaction seems to produce no harm. I recall a patient whose bowels would move but once in two or three weeks. The only difficulty in moving the bowels a couple of times a month was that it was a good deal of work to get such an immense accumulation discharged. She was nursing an infant, also, at the time. There was no toxic influence, no decrease in the health of either mother or infant. Dr. Bond's list of remedies indicated his line of treatment in these cases; where the kidneys were not active, where the bowels were not active, good results were gotten from heart tonics, from diuretics and from cathartics. He administered the common medicines in the common way. He was so saturated with his notion that he examined the urine, he inspected the stools. He sought for the real cause of the difficulty. Dr. Virden and Dr. Bond have done this, and they have secured a following along those lines in the societies and among their people. It is a loss to us that in medicine we should ignore the most common and the simple things. I never shall forget my regret over losing a little bottle that the

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late Dr. Frisbie Newcomer gave me that contained three or four thousand gall stones. He was accustomed to examine the washings from the bowels in so-called bilious cases, and so struck this mine of little gall-stones. By such careful inspection we learn a great deal, and this paper is very valuable to us if it will teach us to look very constantly and carefully after the condition of the bowels. Still, we do not want to be led into the belief that all the reflexes that the doctor mentioned in the close of his paper are due to fœcal impaction. We may be easily led into false and extreme notions. I remember hearing Dr. Jewell, of Chicago, read a paper before the Chicago Medical Society, in which he cited nearly a thousand cases, two hundred of which were among doctors; cases complicated with melancholia, and in which he had found the difficulty was due to fœcal impaction. By kneading the bowel and percussing with a piece of sole leather, used as a hammer, he was able to relieve two hundred of his brother doctors from incarceration in the insane asylum by simply opening their bowels. Now we do not believe this; at least I do not. It is an exaggeration. We should keep within the bounds of reason and common sense in studying any line of practice, or of treatment.

Dr. Bond, of Richmond—Mr. President: I do not care to say very much because I have a paper on this subject this afternoon. I do not know of any subject that is more intensely interesting to physicians than this one. Dr. Brayton has intimated that I have taken certain lines of investigation, but, as a matter of fact, my paper this afternoon will show that that is not the only line that has been considered in these demonstrations. In the future we will not be so much interested in what we find in the bowel, as a mass, as in what we find in the system at large. I believe the tendency of the times is to convert the radicals that are found in the bowels, also, about the tissues of the body, into certain compounds, which are deleterious to the life principle of the cell. Now, it is known that certain chemicals have a certain affinity for different locations of the body, therefore, whenever a chemical is put into the body it goes until it finds a place with certain elements with which it has a chemical affinity. We know that

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there is such a thing, that there is chemical affinity. These unions that take place of tissue by the natural affinity which exists between chemicals or radicals determines the course of those cells in this affinity, and consequently determine whether a cell shall lose its integrity as a cell, and its function, or whether it shall go on in a more prosperous way; whether it shall add to its nutrition, in other words, or whether it shall take from its nutrition, or destroy its life entirely. Dr. Virden's paper has taken up that part of the principle which relates to the bowels and the accumulation of effete material in the bowel.

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CHEMISTRY OF DISEASE.

BY C. S. BOND, M. S., M. D., RICHMOND, IND.

What the alchemist's restless search for gold and silver among the baser metals was to inorganic chemistry, the discovery of the various forms of bacteria have been to organic chemistry. Never had such wonderful advance been made in inorganic chemistry as occurred during the vain attempt to convert the baser metals into silver and gold; and now the same resistless energy is being expended on researches in organic compounds, to determine the relation, if any, that these bear to lower orders of life, and these again on the higher forms of animal life. We are at present in the vortex of this turmoil, and, therefore, can not see, as one standing aloof at some distant day, the exact status of this day's work, yet some facts seem to be crystallizing out of the vast deal of work done in the last ten years that may be considered in the neighborhood of ultimate truth; and it is to this work that I care to call your attention for the few minutes at my command.

Long years ago it was demonstrated that no hard and fast lines could be drawn between organic and inorganic chemistry; that whatever is found in organized tissue can be produced by synthesis from the elements entering into these compounds; and, therefore, that a special vital force has ceased to encumber scientific progress; yet this same vital force generally determines the direction of chemical changes taking place in organized living matter, and, therefore, plays a very important role in the study of this very complex subject. For example, it has been known for centuries that the juices of certain plants and fruits, when exposed for some time to the open air, gradually turned to vinegar or wine. For a long time this change

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was not called in question, but as more powerful microscopes came into use it was discovered that a small plant invaded these juices, and by the processes of its life, in such a medium, added oxygen to the fluid, causing its transformation into definite chemical compounds—alcohol and carbonic acid; the particular product depending upon the kind of juice used, as well as the specific cell formation that invaded it.

Without reviewing the long controversy on these ferments that took place but a few years ago, between such eminent men as Schwann and Pasteur, it is sufficient to say that enough evidence has been produced within the interim between the present time and that of this discussion to put Pasteur's view in the lead. And while there are some that do not believe that all chemical changes in such organic substances are due to a low order of life, such as the so called vicious fermentations that seem to take place in sterilized media from such juices, yet the majority of the thinking profession grant the claim made by Pasteur in this direction.

All of these substances can be made by synthesis, and therefore, so far as their chemical action is concerned, are as potent in the one form as the other; and as factors in the human organism would be as much for good or evil as if produced by the plant life.

Now, what has been said concerning certain juices can with equal force be affirmed of animal substances, such as milk or the putrefactive changes incident to the metamorphosis of lifeless bodies; but in these cases still other orders of cell life are found to set in motion the series of more or less uniform changes that finally result in ammonia, carbonic acid and water. It has been demonstrated that the transposition of media with different forms of ferments produced in these substances different retrograde chemical compounds, and that, therefore, it becomes highly important to know the environment, as well as the particular bacteria in question, in order to surmise the ultimate product in such fermentation. Again, chemical changes taking place under the influence of such life, in the presence of varying degrees of temperature, result in chemical products differing widely in composition, or in a complete cessation of such action.

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In view of these facts, and many others not mentioned, concerning the action of low orders of life on dead or dying animal or vegetable structures, together with a knowledge of parasitic growth in higher forms of life, Pasteur, Koch and others projected this knowledge to living bodies, and it is still fresh in the minds of *all* of us with what enthusiasm these deductions were received by the profession at large. To cure disease by inoculation was, indeed, a boon devoutly to be wished! It will be remembered in the line of this brilliant work, that Koch first injected a bacillus, changed by its life in different media, and therefore known to have certain power in guinea-pigs and other lower animals, into the subcellular tissue, and produced a certain immunity against the more powerful cultures; and afterwards found, to his surprise, that these bacilli were still to be found in the original seat of injection, and that they had not entered into the circulation at all. At this point some new discoveries were made necessary; and in this line of work now so energetically being pushed by all civilized nations, we can expect, as in a vein of prophecy, the real work of the future, and that when all these vexed questions, as to chemical compounds, produced by this life, are mature, with its correlative knowledge, we shall see the first rays of scientific medicine.

When an interval of time was given to this vast army of workers, it was discovered that many barriers beset the way; that these bacilli, in the processes of living, had caused at least three changes of vast importance to the equality of the true equation. In the first place they had formed by the excretory functions involved in their being able to live on a very highly unstable chemical compound or ptomaine; and again, the organic media from which they drew their nourishment was, by the changes incident to the first, also presenting a detritus, while the proteids of the cells are still present. Hueppe and Scholl have produced a fluid identical in physical properties, in chemical reactions, and in its effects on animals, with Koch's fluid, in the following way: Cultures of the bacillus are filtered, sterilized by heat, and concentrated; or it is freed from germs by filtration through a Chamberland filter and concentrated. It becomes evident from this that the bacillii are not

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essential to the immediate results obtaining from these injections, which, under the term of tuberculin, have been so extensively given during the past few years.

Now, reasoning from analogy, it is inferred that these same bacilli, when invading diseased areas, produce in like manner these metamorphic changes found in cultures and media outside of the body, and that these unstable compounds act on it, as the injected product, to cause what is known as hectic fever, and a long trend of those symptoms so well known to every practitioner. Granting all that the most enthusiastic workers in this field ask concerning the potency of these chemical products, the whole matter of the true relations of them to disease would be in a state of chaos, if it were not supplemented by experimental knowledge of equal brilliancy, on the part of the higher structural life, as found in the animal experimented upon.

Reasoning, again, from what has been known to be functions common to life generally, and from certain well defined cases in particular, we are enabled, by progressive approach, to formulate rules for like conditions in man.

For example, it has been common knowledge for many centuries that certain animals and insects were capable of elaborating fluids, very complex in character, which, when injected subcutaneously, produced symptoms of poisoning in the animal so injected. A careful examination of these poisons demonstrated a very complex body of uncertain chemical composition, resembling in a marked degree the albumen of the white of egg Here is an example of a poison elaborated by a collection of cells devoted to that purpose, at the root of a fang of a snake, it may be, which acts in many respects as the toxic ptomaines produced by single-celled life as described. Plants, as well as animals, have this power of producing various compounds, more or less poisonous to the human body. When we approach man it would not be surprising, therefore, if the same functions were not found for thus elaborating, out of the tissues and their blood supply, in health and disease, many such products, more or less poisonous in their action, even to the individual so producing them. It is a very common observation that this seeming truth is realized in the various

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excretory products of the body. It has been known for many years that the urea, uric acid and other urinary excretions produced as end products in the life changes in the various cells of the body, when retained, not only are injurious but result uniformly in the death of the individual; and if any part of such product be so retained a commensurate disability results therefrom. It is also a matter of common knowledge that the cells of the various regions of the body, by that mysterious power called catalysis, are enabled to elaborate from a common blood supply the kind of product necessary to perpetuate the functions of such cells, and that these products are as widely diverging as it is possible for such to be. It is also known that if these cells be changed as to environment an altered or a wholly different product will be produced.

Nor is this more than should have been expected if an extensive view of the subject had been made in the beginning, because it has already been granted with regard to the functions of single cells, and in this case we are only considering a collection of single cells, grouped together for certain departments of the work of the individual. In cases of so slight a change as fear or anxiety, the cells concerned in the mammary gland of a woman produce milk so altered in composition that the child has suffered poisoning from a single nursing. The saliva in its normal state is poisonous when inoculated, and the same may be said of other normal fluids. The cells of the body, therefore, in their active state are most powerful agents for the production of analogous chemical compounds, that are found in the various bacteria before described, and indeed have many properties and chemical bases in common.

It would not be necessary to go far from home, therefore, to seek a potent cause of disease in the various chemical compounds elaborated by outside analogous cells, when our bodies are composed of similar organisms, producing, according to environment, some of the many chemicals, which lead in some instances to disease. It will no doubt be understood in the near future, that a definite chemical compound, resulting from a change of temperature in the cutaneous cells of the body is formed, which is poisonous to the cells of other regions, because of certain vicious chemical unions made with elements

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or compounds composing such cells; and then we shall know the *modus operandi* of a so-called bad cold.

Now, what has been said with reference to the excretions—if you will permit the term—of the living cells, both bacterial and their animal prototypes, can be said of the proteids of both these groups, as they are also powerful factors in the chemical problems of disease. We are so near the birth of this knowledge, that very little can be said other than the probable trend it will take in this new field of chemistry. Enough is known, however, concerning these residue substances, to form a very strong presumption that they are equal, if not the most powerful, factors yet mentioned in the production of chemical changes, in living organic substances, causing disease. When the cells of the body have begun that retrograde metromorphosis incident to the initial steps of putrefaction, either through the agency of environment or from some vicious, intrinsic conditions of the living processes, then bacteria complete the further transformations that result in these products, as the apple growing on the tree, or even while the life of the cells are intact, resist the vinegar-forming yeast cells, so the vitality of cells being themselves bacteria, are able to resist the initial steps.

It matters not, therefore, whether the proteid molecule, reorganized by bacteria, ferments organized in character, or ferments unorganized, as the digestive juices, by the cells of special organs, as kidneys or liver, or by other agencies still unknown. Poisons may be formed by such chemical union that may lead to vast mischief in the economy of the individual. Brunton attributes the great depression that follows the eating of too much food by persons in sedentary life, to the formation of such poison from the food and digestive fluids. Many other examples are given of such poisonous products by men of eminence, but time will not permit even a simple enumeration of them.

When the facts are all in, therefore, we shall find ourselves in the midst of organic chemistry of the most complex bodies, and it is to the ultimate results obtained with these compounds that we are to hope for relief in the scientific cure of disease. From this knowledge we learn that the poisons which are to be combatted are often produced in organic materials, it may

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be entirely removed from the body, and that in this ptomatic and proteid shape it is introduced into the individual, and there produces its deadly results.

Again, the body itself may produce leucomaines, which, as poisons, also act deleteriously on the other cells of the same individual, generally affecting special regions more than others because of distinctive chemical unions being formed in such tissue from its chemical affinity. Then again, the detritus from each of these sets of cells, either the single cells or a collection of them, causes vast retrograde changes in also specialized areas, from reasons mentioned.

For example, typhoid fever is a disease resulting from chemical changes in the alimentary canal, or from such changes in organic material outside of the body or from both these factors, which not only produce the death of certain vascular areas in the bowel, but also from these centers and from the other metamorphic products present, cause a general disturbance of the body as a whole.

Now it has been shown by Vaughan that at least three or four ferments are capable of forming these poisons to a more or less marked degree, and that these sterilized poisons, when injected, cause the ordinary symptoms seen in marked cases of typhoid fever. We learn from this source, therefore, that what is most desirous in the treatment of typhoid fever is not a method of drugs adapted to the symptoms, or some expectant plan, but a definite knowledge of these poisons and the various ways they may be produced, and finally the antidotes to them. The fever, after such treatment, and the long train of symptoms incident to the primary cause, will be of no consequence.

As we may be on the eve of cholera it will be of value to inquire into the factors that probably produce that much to be dreaded disease. Here, again, we find a chemical proteid, which, when formed by the bacillus in the intestines, produces the immediate and remote symptoms of the disease by various chemical unions vicious in character to the functions of cells and organs. This poison may be elaborated in proper media outside of the body, and thus conveyed to the bowels, even though the bacilli were dead, might cause very pronounced

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and even fatal symptoms. It is well known that sterilized media, when injected subcutaneously, produce these symptoms, and it would be no fallacious reasoning to presume that these cultures, taken as a whole into the intestines, would produce like results, and indeed that is what happens. If a person eat meat, therefore, which contains bacilli, or meat even in which the bacilli have formed poison, and then are by heat or otherwise destroyed, it does not follow that such person will not be affected with cholera; indeed, the weight of evidence now would go to prove the certainty of the opposite conclusion.

What we are to protect ourselves against, therefore, is the poison, or poisons, that certain organisms produce. Now, Cunningham describes ten species of the comma bacillus, one of which does not produce a liquid gelatin and does not make the cholera reaction. It probably will turn out that the severity of this, as well as kindred diseases, will be determined by the difference in poison-forming power resident in the dif-ent species of these cells.

Now, to make more plain the chemical relation of these poisons to disease, and that the importance of disease hinges almost entirely on a definite knowledge of their various compounds, it may be wise to cite diseases resulting from chemicals elaborated wholly outside of the body. It will be remembered that Vaughan, a few years ago, demonstrated a poisonous substance in cheese, which he had also found in milk, that this is produced in milk by the aid of ferments, under peculiar circumstances, and that when taken into the body, even in small quantities, causes violent symptoms of poisoning from vicious chemical unions in various regions of the body. The bacteria may be dead, and, indeed, such is generally the case, and still the fatal result is not impeded in the least thereby. Different results obtain again when smaller amounts of this poison are taken into the bowels, as it is well known now that many of the cases of summer diarrhea and cholera infantum are due to this and kindred poisons, which are wholly, or in large part, found in media outside of the body. It is probable that several micro-organisms are responsible for the chemical products thus elaborated, all of which produce more

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or less decisive reaction with the infantile bowel. It is the business of doctors, therefore, to neutralize the irritating substances in the bowels, or outside of them, in order to bring about in these babes a healthy mucous membrane, and relieve the remote consequences resulting from former irritation and poisonous reactions.

Many other examples of poisons elaborated, in part or wholly, outside of the body, might be mentioned, with their resulting disabilities, if time permitted, but I hasten in conclusion to speak of those diseases having for their initial steps poisons produced in the body itself. Within the circle of mysteries heretofore mentioned concerning unstable chemical compounds, is to be found those changes incident to the living processes which take place constantly in healthy tissue, and which are correlated with life itself. In the living cells of the body the nucleus manifests life in the direction of being able to divide in certain lines of cleavage into retrograde chemical products formed, in the first instance from nuclein—adenine and guanine—under the influence of water, and these compounds again form hypoxanthine and xanthine, and these again form, by a still farther metamorphosis—due to chemical changes in the living cell—the normal end products, urea and uric acid; so says Kassel.

It has been known for many years that the last named compounds were poisonous to the normal tissue when allowed to accumulate in the blood or cells, but it is now known that many other members of the group above them are also highly poisonous, and no doubt are responsible—in definite ways—for much disease phenomena, with which we are, in our present ignorant condition, not able, from these relations, to explain. In the case of puerperal eclampsia, uremia, chorea, rheumatism, certain forms of anemia, leucocythemia, and many forms of disturbed digestion, together with numerous defects of assimilation, we are probably dealing with one or more of these metamorphic products, which, in a more or less powerful way, is determining the fruitlessness of our symptomatic treatment.

If we only knew that which in the latter part of the twentieth century will be taught in all medical colleges, we would

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be able to relieve these patients of many, if not all, of these poisonous agents, by increasing normal physiological functions, or by making neutral these compounds. Twenty-five millions of dollars are received by patent medicine venders, not to say anything concerning the hoards of money given to irregular and regular doctors, each year, to assuage and benumb the evils of these poisons, but where are those dollars that shall establish the institutions and furnish the nerve and sinew free from such agents, that must be the means to this most complex knowledge, and what shall this State do through its many intelligent physicians to aid in this demonstration?

DISCUSSION.

Dr. Guido Bell, of Indianapolis—Mr. President: I am sorry to attempt to address you again, but such an important paper should not be passed by without being duly discussed. It is the most important paper that has been read at this meeting, in my judgment, because it treats of a subject just on the border line of our knowledge, and where we feel the greatest want of enlightenment. Perhaps you have read a speech of Spurgeon made in London, to the Royal Society, pointing out the relation between medical practice and biology. He gave a fine discussion of all these ancient doctrines.

Of Brown, he said he was the advocate of this idea, and of Humboldt he expressed his pleasure that finally Humboldt, in his old age, had to succumb and say that vitality is nothing. Wherever vitality was it was electricity. Our pathology or our pathological anatomy is not satisfactory now at all with practice. We are able, by means of our examinations, to make a detail in our diagnosis that far supersedes all diagnoses in former years; but when we come to treating cases we are just in the place of the man who tried to shoot the bird—who takes aim, and the moment he shoots he is hoodwinked, and shoots into uncertainty. We are exactly placed in that position. We are distinct and sure in our diagnosis, but in our treatment we are far behind; and this paper is just calculated to lead us to the proper way. The essayist says we should not make any distinction between inorganic and organic matter. Indeed,

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there is only one energy, manifested in different ways, be it chemical change, warmth, light, or electricity; and the same thing is true of organic matter, only we have just room for the life cell. There is a controlling power leading to manifestations of that energy in such a way that the cells, as organisms, are acting in harmony. Any impairment of that controlling power will result in fever, nothing but fever. We have fever without heat. We have high fevers, but it don't interfere with the integrity of the organism at all, but passes away, and fevers with low temperature are destructive. How can you explain it? Just from the principle that impairment of the controlling power, of the energy, is the fever; and such a paper as read by the Doctor is the very thing to lead us to the proper consideration of these questions.

Dr. Virden, of Indianapolis—Mr. President: I wish to say a few words in commendation of this paper, and to more forcibly emphasize some facts of which Dr. Bond has spoken. I think one or two things that he merely hinted at might be put a little stronger. The first is that we are treating a great many diseases as local primarily which were formerly considered constitutional diseases. It is not many years ago that all physicians treated diphtheria as if it was a constitutional disease. Some people to-day claim that it is constitutional, it is true, but most all doctors consider it as a primary local disease, a poison originating entirely from this local point, and being distributed through the system. The doctor's paper teaches that a great many other diseases are the same way. Typhoid fever is the same kind of a disease, and if the poison is kept down, the amount is limited, and the disease is going to be mild. Our treatment should be in that line. We must look where the poison comes from, and get that down, and then we are controlling the disease. Instead of treating typhoid fever with a large quantity of water, and giving anti-pyretics, we want to give something to kill the poison and prevent its formation, then we are controlling the disease. Other diseases should be treated in the same way. With a great many of them we can not do this, but when there is a chance to do it we should take advantage of it. If we have cholera here we must treat it

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anti-septically. Clean the bowel if it does not clean itself. If it is clean, have something there that will kill the germ which is producing the poison. If we treat them otherwise we will not kill the disease. The same thing is true with typhoid fever. Let us treat all these diseases as the doctor teaches us in his paper.

Dr. J. W. Hervey, of Indianapolis—Mr. President: I move the reference of this paper to the Committee on Publication. I would like to compliment the paper, but I can not as highly or eloquently as I would wish to. It is certainly a very important paper, and I am glad we are taking this view of these subjects that come up that are agitating the medical mind of the age. I think we are advancing in the right direction. I am glad to see our young men are so well posted on questions of so much importance.

Dr. Bond, of Richmond—Mr. President: Of course it would be very hard for me to cover the whole ground of disease in a twenty minutes' paper. I tried as far as possible to cover that department of medicine that comes under this head. There are a great many other diseases that have their source in other conditions, but the thing I wished most especially to teach in this paper is the fallacy that seems to crop out of the knowledge on this subject, that some doctors still have, that germs are the only thing to be looked for in cases of disease. For instance, it is a well known fact that in an epidemic of cholera there are always mild cases of cholera, you might say, in which they have not been able to demonstrate germs at all. There are a great many attacks of diarrhea, very persistent, coming up wherever there are cases of cholera that the doctors have not been so far capable of explaining. The explanation in the paper is very evident. The poison that the germ makes is elaborated outside the body and taken into the bowel with meats and other compounds that we eat and consequently run the gauntlet of the stomach and get into the bowel and have a poisonous effect there. This point, then, would be fatal in any treatment of cholera, if we intended to disinfect the bowel; we would not reach the source of the disease at all. So it might be in reference to other diseases. No doubt some of these

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poisons are elaborated in the body itself. Man is a harborer of bacteria, and he has the power resident in himself of producing injuries, or combating injuries produced there in himself or outside of himself. That is the salvation that resides in the man himself as against every disease that comes along.

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TRACHEOTOMY.

BY T. F. LEECH, M. D., OF CRAWFORDSVILLE.

Twenty-eight years ago, while sojourning in Louisiana, I shot an American pelican, and was greatly interested in examining its anatomical construction, which, with the exception of the head, very much resembled that of the swan. The beak was eighteen inches in length, and the lower jaw formed the rim of an immense pouch that would hold more than a gallon. This pouch was formed by a thick, heavy membrane, and evidently intended for service. When I picked him up he was alive, having only suffered the fracture of one wing. On opening the mouth I beheld the trachea, running in a torturous course for a distance of nine inches along the bottom of the above-described pouch. It had much the appearance of a snake that the bird was in the act of swallowing. It seemed to be very much alive, for at each inspiration and expiration the larynx would open and close like a mouth. For surgical proceedures, it would be convenient to have the trachea similarly situated in man. The epiglottis formed a lid large enough to cover the larynx, and to project over its edge, precluding the possibility of its being drawn into the trachea and causing suffocation, as sometimes happens in the human subject. The bird had the same control over the larynx that it did over its mouth. In fact, the opening to the larynx looked like a second mouth, and seemed to be operated upon the same principle. As usual, all the food had to pass over this exposed trachea. I tried to think up the object of the pouch, and came to the conclusion that it was meant to act as second craw, to hold a ten pound fish to be eaten on the installment plan. In that case it would be very inconvenient to have the breathing apparatus

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right in the bottom of it. No wonder the larynx was supplied with such a large lid. When it comes to protecting itself, I will put nature against the world. While the pelican was an interesting study, I do not intend to deliver a lecture on comparative anatomy, but for the few minutes that I shall occupy your attention to-day I desire to direct your thoughts to the subject of extraneous bodies in the different cavities of the body so often found during the professional life of every practitioner of medicine and surgery.

Of the young of all animals the child is the most helpless and least capable of taking care of itself. He is a circus all within himself—audience, performer and all. It is always a go, and the unsuspecting audience must look out for itself, as the show is run without the least consideration of its welfare.

It would be impossible to imagine any substance, animal, vegetable or mineral, that has not been found in the different tubes and vessels of the human body. Shoestrings and tin penholders have frequently formed the nuclei of urinary calculi. I have been astonished at the size of bodies that young children have succeeded in forcing into their noses

The late Dr. Mary H. Wilhite was once called to see a four-year old girl, the daughter of one of our wealthy citizens. The child had a stone tightly wedged far back in the left nasal passage. I was called to assist in its removal, and, after considerable prying, scraping and bending of my instruments, I got the thing started, and finally removed a stone about the size of the first joint of your thumb. You should have seen the big eyes and the big relief of the parents. If they had not seen the stone on its way out I know I should never have been able to make them believe that it was ever in the child's nose.

I have removed grains of corn and beans from the nose that had swollen, by the absorption of fluids, until they were dislodged with very great difficulty. An unheard of case occurred some years ago in Southern Indiana, in which a physician, after removing a sun-fish from the vagina of a young woman, had the very bad taste to tell his wife of it, and through her indiscretion was sued for $5,000 damages, a part of which he had to pay. Moral: Never tell your wife anything.

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In the year 1868 I was called to see Willie Gray, a boy four years old, who had unfortunately swallowed a silver quarter of a dollar. His home at that time was in Henry County, Missouri, but he resides at present on a farm near New Ross, eight miles east of Crawfordsville. The accident occurred on a Saturday forenoon at ten o'clock. After some strangling and choking he became quiet and seemed to feel about as comfortable as usual, but his parents' feeling alarmed, called in old Dr. Land, in whose skill they had implicit confidence. The doctor told them that their child was all right, that if he was choked he couldn't breathe, and besides, just as soon as the quarter passed below the root of the neck, it was in the stomach. This quieted them for a time, but the boy refused to eat, a very unusual thing for a boy in good health to do, so, some fifty hours after the accident occurred, I was called and told that the only thing the boy had attempted to swallow was a little pumpkin pie, on Monday morning. The pie had choked him, and it was impossible to get him to try to swallow anything else. On passing a large bougie down the æsophagus I discovered an obstruction at or very near the stomach. I used some force to push it into the stomach, if it was the silver quarter, but found it was firmly grasped as if held within a stricture of the æsophagus. I then took four feet of copper wire, bent it in the middle, and out of the loop end I made a blunt hook which I passed down by the obstruction and into the stomach. On attempting to withdraw the hook it caught the quarter firmly within its grasp and hung fast. I now "stopped worrying about the asses," and began to wonder if I wasn't in a box. It is very necessary for a surgeon to keep his head, but I found it hard to keep mine. My assistant, Dr. Britts, who was trying to hold the boy still, but not succeeding by any means, told me to push it into the stomach, as I could never get it out. I used all the force pulling on the hook that I thought I dared to, and still I couldn't move it. Finally my hold slipped off, or it felt like it did, and out came the hook, pumpkin, quarter and all, much to my relief, and, I might say, the boy's, too. There was no further trouble, and Mr. Gray is now a fine, large, healthy man, who appreciates the danger he was in and the services rendered him by thus taking the

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foreign body out of the æsophagus. He now supports a widowed mother, who had the good sense to have done whatever was necessary to relieve her boy.

Shortly after attending this case, I was called to see a six-year old boy who had a few minutes before my arrival sucked a bolus of bread into the trachea and died immediately from suffocation. His brother had jerked a piece of bread out of his hand, throwing him into a violent fit of anger, and causing him to inhale the portion he was chewing at the time. I could not, on exploring with my finger, feel the mass, and being denied an opportunity to open the trachea, as well as a post mortem examination, I never knew just how the bolus killed the boy. I suppose it must have closed both bronchi, stopping the breath entirely.

The case, however, that decided me in the choice of my subject to-day, and which, I think, ought to be of great interest to the profession, is the following one:

On the morning of May 28, 1884, nine years ago, I was called in great haste to see Willie Furr, aged seven years, who had inhaled a small cork, with a pin run through it, as in this one I show you here. He had been using it as ammunition for a blow gun, when it became lodged in his gun, and being unable to blow it out, he succeeded in dislodging it by sucking it backward, and at the same time converting the trachea into a blow-gun that came very near costing our young nimrod his life. A whistling sound in that region enabled me to locate the foreign body in the left bronchus, which was peculiar, as they most always pass into the right bronchus, which is the larger, and besides, the spur or ridge at the lower end of the trachea being placed to the left of the mesian line, would influence its course. In practice we find many things different from that laid down in the books. The foreign body in this case excited a violent inflammation of the left lung, which resulted in suppuration, forming a large abscess, which evacuated through the trachea nearly strangling the boy to death. It discharged something like a quart of pus at first, leaving a large cavity, which gradually contracted for some four weeks, and then refilled, or was superseded by another large abscess. At this time the case went out of my hands for awhile, but I

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learned from the attending physicians that the abscesses continued to recur for two years, the boy becoming very much emaciated and weak. He kept his bed most of the time, but would often run to his mother suffering from spasm of the larynx, caused by the offending body becoming loosened and playing up and down the windpipe. This state of things continued for seven years, the cork never becoming fastened in the tubes or lung tissue. It was always a great source of annoyance by moving freely in the windpipe, except for the short times it would become lodged in the left bronchus. That the windpipe was never opened and an effort made to remove the extraneous body, was due to the extreme tenderheartedness of the boy's mother. He was allowed to suffer year after year, when he could have been relieved. Some three years after the accident occurred, I saw the boy and insisted on their having something done to relieve him. I consulted Dr. G. V. Woollen in regard to the case, and he proposed that we first perform tracheotomy and exhaust all the means at our command in an effort to remove the body in that way, and if it was hid away in a cavity, to make a trap door in the chest wall and with the electro-cautery open into the cavity and remove the offending body. This we were not allowed to do, although the discouraged father said he would give us a five-hundred dollar stallion, all he had left in the world, if we would do it. We wanted the stallion, but we could not get the mother's consent to an operation. How time did "fudget." Seven years, long dreary years, to the boy and his blow-gun. No hope in his breast, but, instead, a cork with a pin run through it. But, at last, relief unexpectedly came. In a violent fit of coughing caused by the strange ammunition playing over the delicate lining membrane of the trachea, it was thrown out, and the now young man made a rapid and complete recovery. A splendid instance of the saying, "as long as there is life there is hope."

I will not take up your time in trying to give the treatment. I have not the time, if I thought best, to attempt it, and, besides, you all know that the thing to do is to remove the foreign body if you can; and if you can't, to prepare your patient to bear its presence. We can find particulars laid down

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for each variety in our text books—Gross, Cohen, Sajous, etc. —but let me call your attention to the improved instruments now in use for the removal of all extraneous substances and the facility with which they can be used, especially in the air passages, under the influence of cocaine anæsthesia, where the sensibility of the part is allayed and all danger of spasm of the larynx removed. But let me caution you as to the use of 10 and 20 per cent. solutions of cocaine. Dr. Greene, who had some experience with the evil effects of cocaine lately, will probably second what I may say in that direction. I came on the ground a little late, but I saw the patient, her friends, and also the doctor, and I made up my mind that if they hadn't been scared or excited, they had at least been intensely interested in something.

Another thing, always interrogate the cavities in which there is any likelihood of there being any foreign body. They may have entered while the patient was excited or unconscious, or he may, for various reasons, keep you in ignorance—through dread of an operation, timidity of children, or what not. Explore, explore, and don't try to be smart. Don't practice surgery on the jump to see what is the matter at a glance, and know what to do on the instant. Do doctors ever make mistakes? Does anything ever come up to show that they have not understood the case, and, consequently, not been administering the right treatment, or may be giving the worst possible treatment? How does one feel when thus compromised and exposed? What lonely place sometimes covers up the mistakes of the doctor? There are many such questions that suggest themselves to the thoughtful surgeon, and as we each grow old we can look back over our professional lives and away down in our inmost soul sing that sad song, "Oh, the mistakes of my life have been many, etc."

I always feel more secure after I have exhausted all the means in my power to find out just what does ail my patient, and, although I may not show off to as good advantage while prosecuting my inquiry, I have sometimes not only surprised the attending surgeon in cases of consultation, but surprised myself as well.

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In cases where we have been misled, how glad we are not to have given expression to our earlier convictions. Be sure you are right, *first*, then go ahead.

A friend of mine once treated a soldier for gunshot wound and fracture of the pubes. After weeks of suffering the man died, and a post-mortem examination revealed the fact that there was a piece of wood off the saddletree in his urinary bladder. The splinter measured 4½ inches by 2½ inches. The wound, the uretha and the rectum to explore through, and still allow a chunk of wood in the bladder to kill his patient! What a humiliation! This learned body once examined a boy with a granulating wound on the head, and if you had made ever so superficial an examination with a probe, you might have covered yourselves all over with glory, as the very next a piece of wood was sticking up out of the brain substance, which, on being extracted, was found to measure 1½ inches in length. Such an opportunity to distinguish yourselves may never occur again.

Nature will restore a part, if not interfered with, and if she makes a failure it is high time to investigate and try, if possible, to discover the cause of the failure. The source of irritation will generally be found to be some extraneous body, which ought to be removed. An experienced general always looks out to discover and uncover all masked batteries, so as to have an open field and a fair fight; and in our warfare with injury and disease, we should follow his example.

When we understand the case and know exactly what ails our patient, with what confidence we treat him; while on the other hand, with what uncertainty, vaccillation, discouragement and, I might add, fear we pursue the treatment of a case that we do not understand. Of course, this is only among ourselves. I am not going to publish it abroad from the housetops.

Napoleon once said that when he could see the enemy he was never afraid; but, said he, "I have been made to tremble for my army when the enemy was approaching under cover."

One word more and I close, and that is, if you are a surgeon, or not, if you like surgery, or not, if you are competent, or not, always hold yourself in readiness to perform tracheotomy,

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that no life may be sacrificed for the lack of that simple operation when you are around, even (let me say it softly) in that dread disease, diphtheria.

DISCUSSION.

Dr. G. V. Woollen, of Indianapolis—Mr. President: I want to express my views. I did not know what was the outcome in the case of this patient until yesterday evening; Dr. Leech told me of it, and I was gratified to know such a distressing case did finally recover in this way, and yet the report of the case and this happy termination that he has here reported is very apt to mislead the medical profession and establish a precedent for further action in the future—a very dangerous precedent. This case got through. Many other cases would succumb under similar circumstances, and the question is whether the termination we have had in this case justifies any advice other than that I have the honor to give in this case. No one can know beforehand that such a result will be obtained as was obtained in this case, but the results that we do have are very distressing and disastrous. Seven years of such suffering as this patient had, the crippled condition of that chest, or the breathing apparatus of that patient, is such as to make life more or less hazardous in the future; so that it strikes me that the line of practice indicated by the essayist here is the line of practice to be pursued, and this thing of waiting on a case of this kind without a determined effort to remove the foreign body, when we know such efforts are attended so oftentimes with signal success, is not to be thought of. Any other line of practice than that indicated is certainly very injudicious in my mind. I only rose especially to express my thanks to Dr. Leech for the report of this case, bringing another case of this kind to the surface so that we may have the accumulated experience in cases of this kind to guide us in the future.

Dr. Theo. Potter, of Indianapolis—Mr. President: I also had experience some time ago in connection with three cases of foreign body in the larynx in my practice. In looking up the

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statistics I found, from the figures of Gross and others, I believe, the mortality is about 72 per cent. in the cases let alone. I was especially impressed with these figures, which represent the result of several hundred cases, because out of the three cases which I saw in a short time two of them recovered without interference. One was a case of a young lady who got a piece of chicken bone in the larynx. She came to my office. I could see the bone; she was choking a good deal and was in a great deal of distress, but before I could insert the instrument to remove it she gave a hard cough and out came the bone. The other case was that which I reported some time ago to the Marion County Medical Society; that of a girl of about fifteen or sixteen, who, in an epileptic spasm, got a pin into her larynx. The bone could be very easily seen projecting downward and forward and piercing the left vocal cord. They refused to permit any interference, and the girl was in bad condition for between two and three weeks, and coughed and expectorated blood, it being almost impossible for her to swallow, so that she almost starved. Of course, she was in constant danger of edema of the larynx or sudden death from obstruction from some particle of food; but one day, in her starvation, while they were at dinner—she had been almost unable to eat anything—she reached out and grabbed a piece of fish from the plate and stuffed it into her mouth and endeavored to swallow it; it caused gagging and coughing, and out came the bone.

When I came to look up the statistics I found that 72 per cent. of such cases died. Now, the paper is interesting to me because I happened to see one of these cases of foreign body in the lungs during the last year, a case, which has been reported to the Medical Society, of a man who got a large section of pipe stem into his lung, and died of gangrene of the lung. I have the specimen of the lung with the pipe stem in its position in the bronchial tube. I intended to bring it down here this morning, but in my hurry forgot it. With the consent of the Society I will bring it up after dinner, and show you that specimen. So far as we could tell it was impossible to reach the body through the trachea, and the question was, what should be done? Stimulated largely by the case that occurred

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in Brooklyn, which many will remember, of the clergyman who got a cork in his bronchial tube, an operation through the back between the scapula and the spinal column has been proposed. It has never been done, so far as I know. This boy wanted us to operate upon him, and I gave surgeons in this city the opportunity to do it, but they didn't think proper to undertake it, and the boy died. The operation is simply to go in between the scapula and the spinal column, cutting two or three ribs and then pushing aside the pleura and opening the bronchial tube. It has been suggested that instead of opening the bronchial tube, the finger might be inserted, and through combined tracheotomy an instrument being guided thus in the bronchial tube, the foreign body might be coaxed forward until it could be grasped. That operation has never been performed. It is a serious question what should be done in these cases, and this procedure seems to be open. I will bring that specimen after dinner.

Dr. Stemen, of Ft. Wayne—It seems to me, Mr. President, that there is one point brought out in this paper that is important, and that is that it is the duty of the surgeon not to permit himself to be influenced by the relatives and friends. A man who practices surgery to any great extent, a man who has from 1,000 to 1,200 surgical cases a year, has not the time to stop and parley with parents and friends about a case, and the propriety of operating. Every surgeon, who is qualified to practice surgery at all, knows when and how he should operate. I know full well if I am called and find a child has been allowed to play with buttons and pins, and miscellaneous things, and one of them has lodged in the pipe, or become lodged in the vocal cords, I know my duty perfectly. I know that it is the duty of the surgeon to open up and let air into the lungs. If you don't do it your patient is going to die, positively. Surely it is the duty of the surgeon not to stop to parley with the friends of the patient, but to do his duty there and then, and if they will not permit him, to tell them they must employ another man, that he will not be responsible for the life of the patient. I believe that is the duty of the surgeon. I don't believe it is the duty of any man to allow a patient to go through life for seven long years, as in the case

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reported, if there is a possibility of relief for that patient by surgical interference I believe it is the duty of the surgeon, under the circumstances, when his diagnosis is made up, and he believes positively and surely that the only result to be obtained is by surgical interference, to go on and operate, let the consequences be what they may.

Dr. Frank, of Ligonier—Mr. President: I had a case, a few years ago, myself, of a foreign body in the trachea—a little boy some seven or eight years old. It was in the spring of the year, and he was chopping a sugar tree, and a little chip about three-quarters of an inch long and three-quarters of an inch wide at the broadest end, and perhaps a half inch at the narrow end, with rough edges, flew off, and he put that into his mouth while scuffling with another boy, and the result was it was taken into the trachea, the bronchus. That chip remained for fifty-two days, and during that time the boy suffered very extensively from bronchitis, expectorated very freely, his health went down, and he lost very much in weight; but at the expiration of fifty-two days the chip came up surrounded by mucous and pus. The boy got perfectly well and is all right, and there was no surgical interference in that case.

Dr. J. W. Hervey, of Indianapolis—Mr. President: I am satisfied if you extend this discussion through the experience of this house you would occupy the whole day hearing incidents and facts connected with the experience of medical men in this line in the practice. The only thing I have to say is that I have seen almost every kind of thing put in the nose that is capable of being put into the opening, and I am glad there is a new branch of surgery called orificial surgery. All I have got to say on the subject is, I advise every man to have in his office such appliances as he can utilize, and if he has not got them, he can make them. I always keep German silver and a soldering iron on hand so as to make instruments to suit the emergency. I never succeeded in two cases with the same instrument.

Dr. Leech, of Crawfordsville—Mr. President: I was in hopes Dr. Weist would be here to take part in this discussion. He has given the subject considerable attention. Dr. Potter has told us something about this procedure, opening into the

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lungs, and I would like to ask Dr. Woollen if there has been any work done in the direction of opening through the lung tissue with electro-cautery.

Dr. G. V. Woollen, of Indianapolis—Mr. President: I am not familiar with anything just of the kind. It is simply general surgery that when you come into the presence of dangerous hemorrhage you can make your opening that way better than you can with the knife. I do not know of any settled practice in that line, but there is something in the suggestion that it could be utilized to prevent hemorrhage. So far as I know, there has been no extended effort made to extract anything from the bronchi through its walls. Dr. Potter has indicated what has been intimated in that direction; but the time is coming when the medical profession must get to the point where it can deal with these cases When we can invade the brain there is no reason why we can not enter upon any other organ. We can do it without trespassing upon any other vital organ, and there is no reason why it can not be successfully done.

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EMPYEMA, WITH REPORT OF CASES.

BY DR. J. B. BERTELING, OF SOUTH BEND, IND.

My only apology for presenting this paper for your consideration, if, indeed, an apology is necessary, is that for the past three years nothing has appeared in the transactions of the Indiana State Medical Society bearing on the subject, and it entered my thoughts that while the laparotomist was reveling in pus tubes, cystic ovaries, appendicitis, etc., below the diaphragm, it might interest some of you to listen to an humble paper on a not uncommon, but of neglected, pathological condition above the diaphragm. The fact that within four years twelve cases have come under my observation in a town of 25,000 inhabitants may possibly also have been an incentive to presume that the paper could prove of some interest and benefit.

What is Empyema? Empyema means pus within the pleural cavity. Purulent pleurisy would be a more correct term, but usage has adopted the term Empyema, which really means pus in any cavity.

I am of the opinion with Da Costa that were chronic pleurisy and empyema oftener recognized, or, in plain English, did the practitioner devote more time to physical examination of the chest, he would be oftener spared the humiliation of observing spontaneous abscesses of the chest following pneumonia, might oftener prevent a slow but certain exhaustion, and still oftener be spared the humiliation of witnessing his patient dying with so-called liver disease, malaria and consumption.

I can recall a case in point where an undertaker, in dressing a corpse, found a large abscess in the æxilla, which, in moving

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the body, ruptured, and fully half a gallon of pus discharged. The certificate read lung fever. That woman might have been saved. A careful examination and an exploring needle would have cleared up the diagnosis. Whether or no empyema is more prevalent now than formerly I am not prepared to say, but the statement made in a paper read last year before the Illinois State Medical Society that the prevalency of empyema within the last few years was due to the saturation of the system with bacterial germs of influenza does not seem plausible. I could better accept the statement that since influenza, or la grippe, has a tendency to induce pulmonary diseases, therefore pleurisies and empyemas, also, have been more prevalent. However, I believe that empyema is oftener recognized to-day because physical examinations are made more carefully than formerly; physicians are losing their shyness in demanding a bare skin inspection, even if the patient be a woman. To attempt to diagnose a heart lesion or pronounce on a disease of the lungs, by percussion and anscullation through several layers of clothing or through a corset, is sheer nonsense.

Before very long empyema will be as common as pus tubes and appendicitis, with the exception that climate is an important factor in the generation of pleurisy. But this statement will hold good that whatever induces pneumonia is also likely to be a causative agent in the production of purulent pleurisy. Empyema is either of traumatic or idiopathic origin, using the term idiopathic as meaning nothing definite, but merely to distinguish traumatic cases from all others. It will be unnecessary to consider traumatic cases, but pass at once to the idiopathic. The presence of pus anywhere means the presence of germs, and the question arises, How do the germs gain admission to the pleural cavity? I am of the opinion that every case of empyema is primarily a serious effusion; that this essentially asceptic fluid is infected with bacteria, derived either from the blood directly or from contiguous inflammatory centres; for instance, an inflamed lung, a tuberculous lung, or even a simultaneous purulent peritonitis. Practically speaking, primary perulent pleurisy is not uncommon, especially in so-called cases of pleuro pneumonia where the pleuretic affection overrides the pneumonic condition, causing the latter to even be

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lost sight of after a few days, but which yet may act so mysteriously that nothing but a puncture can determine positively whether the dullness on percussion indicates consolidation of pneumonia or the presence of fluid. The bateria found in different forms of empyema are:

1. Staphylococci and streptococci.
2. The pneumonoccus of Friedlander causing the largest percentage of empyema.
3. The bacillus tuberculosis.
4. Saphrophitic germs, inducing putrid pus, and generally derived from contiguous purulent centers, as lepatic abscess or purulent peritonitis and even appendicitis. Were my time not limited I should be pleased to discuss the differential diagnosis of pneumonia, pleurisy and empyema, but as such a discussion would carry me beyond the intent of this paper I shall at once proceed to the methods of relief. Wherever there is pus there remove it, holds good as much in the treatment of empyema as in any other condition where pus is found. In empyema pus is removed by nature—by spontaneous resolution, holding good mostly in children—by rupture into a bronchial tube when the fluid is expectorated, or by rupture through the thoracic wall at some point. When the rupture takes place, not through the side or into a bronchial tube, the immediate result depends on the part invaded. If through the diaphragm, peritonitis, with probable immediate collapse. It has been known to burrow down into the abdominal cavity extraperitoneal, and a case is mentioned where it actually found its way into the leg, acting in the manner of psoas abscess.

The treatment of empyema is essentially surgical, and the four chief methods adopted and in vogue at present are:

1. Aspiration, with or without irrigation by an aspirating apparatus.
2. Thoracotomy; that is, an incision between the ribs, the insertion of drainage tubes and the irrigation of the cavity with warm, antiseptic solutions.
3. Subperiosteal resection of one or two ribs followed by irrigation.

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4 Thoracoplasty, or Estlander's operation, in which several ribs are resected and the pleural cavity laid wide open and packed like any other pus cavity with antiseptic gauzes.

Aspiration should only be practiced as a routine method on children. While a few cases in adults have recovered, these are exceptions to the rule, and valuable time is lost by temporizing.

Incision should be insisted on as soon as pus has been discovered; in fact, the rule holds good that the time of recovery from empyema is in direct proportion to the length of time it existed. Even if the fluid obtained by aspiration is still transparent, if pus is found to be present such fluid should be removed by an incision, for since the pleural membrane has in such cases sustained but little damage, it will require but a short time to restore it to its normal condition by an early removal of a threatening fluid and irrigation with antiseptic solutions.

Subperiosteal resection should be practiced in all chronic cases extending over several months, where the probability exists that the serous membrane has become thickened and where a long time may be expected in irrigation. Estlander's operation should be resorted to where all previous methods have failed, and where the chest is found riddled with many indolent sinuses. I should advise the resection to be done at once in cases where but one operation is likely to be allowed, or where means and attention are scarce, and where temporizing methods may mean want to a family. When the surgeon has the privilege of choosing, resection should be adopted in all cases of comparatively long duration.

All my cases were treated by simple incision—the insertion of drainage tubes and daily irrigation with such antiseptics as bichlor., 1-10,000; Thierch solution carbolic acid, 1 per cent. The fact that some cases have died suddenly from collapse during irrigation has led some to fear this useful method of cleansing. When, however, the irrigating fluid is from 100-103° Fahr., there is no danger; cold or cool water injected into a chest might cause instant death from syncope.

The point of incision has been discussed. Some authorities maintain that it makes no difference where the opening is

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made as long as it is within the pus area, that the expanding lung will force out all fluid at the point of least resistance—that fluid does not flow from the chest as water from a barrel. I believe that the laws of gravity and hydraulics act the same with all fluids, whether they be found within the pleural cavity or in the mains of the city water works, for which reason I assert that the lowest point commensurate with the anatomical structure of the parts and the comfort of the patient is the one to be selected. An incision as near the diaphragm as possible, without injuring that important muscle, in the axillary line, in the eighth intercostal space on the right side, or even the ninth on the left side, gives the best results. By adopting this plan the patient can lie comfortably, also sit up without much pain; and as the lung does not descend completely for a long time, the drainage tubes can not injure the lung, and the danger of perforation is decreased, and, at the same time, the drainage tubes are not likely to be pushed out by the descending lung.

In making the incision, I have of late used a blunt-pointed instrument, such as a haemostatic forceps, in perforating the pleural membrane; after the intercostal space has been well laid open, there is less hemorrhage and less danger from injuring the lung, which, in some cases, may lie dangerously near the point of incision—a knife might do much damage.

One word more about dressing and after-treatment. The operation should be performed under as strictly asceptic precautions as if healing by first intention were expected The fact that we are dealing with pus should not prevent us from being exceedingly careful in the cleansing of ourselves, our instruments and the patient. All water used in irrigation should be previous'y boiled. A purulent pleural cavity may be kept as clean and odorless as an amputated stump by proper precautions, or it may be turned into a veritable cess-pool, the stench becoming intolerable alike to patient and physician if foreign germs saprophytic in character are allowed to enter by filthy dressings and manipulation After the second day I have been in the habit of thoroughly irrigating the cavity with sterilized warm water, about 100° Fahr.; solutions of bichlor., 1-10,000; solutions of Thiersch's powder salicylic acid; 1 to 12

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of boracic acid. These are sufficient for all ordinary cases. Solutions of iodine are sometimes effective in chronic cases. I have used two tubes which at first reach well down to the bottom of the cavity, gradually shortening them as the purulency decreased. The dressings consisted of iodoform gauze, cotton and broad bandages made of cheese cloth, thoroughly boiled and rendered asceptic. As soon as pus ceases to flow from the tubes remove them, wash out the cavity once more with antiseptic solution; lastly with sterilized water slightly saline, and cover the opening with bichlor. gauze covered by rubber tissue and broad cheese cloth bandages. With such precautions most cases recover in from three to five weeks, unless it be a tubercular empyema, or unless some mechanical causes prevent thorough irrigation of the cavity.

The number of cases which have come under my observation is twelve—on ten of which I operated. The other two were in children, one of whom recovered without operation after three months, and in the second the pus was discharged through the bronchial tubes two weeks after pus had been diagnosed. In neither case was an operation permitted.

Case 1.—Man, age 47. Brought into St. Mary's hospital, Cincinnati, Ohio, with history of acute hepatitis. Dullness over whole right side. Diagnosed fluid, but was relieved from duty the same day. Returning after three months I found patient much emaciated. Exploration developed pus. By an incision fully three quarts of pus was evacuated. Recovery after two months; chest wall gradually collapsing. When on the point of leaving hospital he had a cerebral hemorrhage and died five days later. Autopsy developed a clean pleural cavity, blood clot on left side, second frontal convolution.

Case 2.—Girl, age 15. Empyema following pneumonia. Operation by incision. Recovery delayed by cavity becoming infected. Complete recovery after three months.

Case 3.—Boy, age 9. Pneumonia followed by empyema. Operation by incision. Boy recovered in twenty-one days. No collapse of chest wall.

Case 4.—Woman, age 50. Pneumonia on left side from which she slowly recovered after three weeks. A week later rigors and night sweats led me to make a careful examination,

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and as a result I found pus in right pleural cavity, in the side opposite to the one affected by pneumonia. It was and is now my habit of exploring before incising the pleural membrane. In puncturing half an inch anterior to the axillary line in the eighth intercostal space, I obtained blood, half an inch posterior I obtained pus. The incision was made posterior to the line, and on introducing my finger, the lung was found reaching down to the diaphragm, apparently flattened out against the anterior wall of the chest, being rather an unusual condition. In the third week rupture into a bronchial tube occurred, caused probably by one of the drainage tubes, after which irrigation became impossible, on account of recurrent attacks of dyspnœa and spasmodic coughing. Allowed the incision to heal, after which patient expectorated pus for four weeks and then completely recovered. In the meantime, calcium sulphate and Labaraque's solution were administered.

Case 5.—Young man, age 17. History of tuberculosis. Pneumonia on left side, apparent recovery; then pleurisy on right side. Aspiration of one quart of serous fluid on two occasions and no recurrence. Next an empyema on left side; operation by incision and evacuation of fully three pints of pus; recovery uneventful, but four months later patient died of tub. pul., the left side being affected.

Case 6.—Man, age 40. Patient was attacked one night by sudden pain on right side, attended by high fever, but no cough. After ten days the affected side showed signs of fluid, which proved to be pus. Operated by incision, inserted drainage tubes and irrigated. I wish to call your attention to a detail in this case, which, because I overlooked it, caused me great annoyance afterwards. While operating, one of the assistants held the right arm up over the patient's head, stretching the skin over the side and drawing it upward. I made the incision as usual and inserted the drainage tubes, but noticed that when the arm was let down that the incision covered the intercostal space below the one through which the pleura had been incised. Pus burrowed under the skin and fascia almost down to the hip, necessitating another incision over the proper space and further incision in the pus pockets below. However, he recovered in three weeks and is a strong healthy man to-day.

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Case 7.—Boy, age 3. Pneumonia on left side, followed by empyema three weeks later. Incision, drainage-irrigation. Recovery in two weeks.

Case 8—Girl, age 6. Patient had been treated for malaria and worms for four weeks. Physical examination developed dullness over whole left side. Temp. 103, rigors, night sweats. Exploration confirmed diagnosis of empyema. No operation was permitted. Patient slowly recovered after three months without any treatment whatever.

Case 9.—Young man, age 17, student at Notre Dame University. Was called on Wednesday and found patient suffering with what seemed to be peritonitis, with perhaps slightly more tenderness in right ileac fossa. Dr. Daugherty was called in consultation on Friday and agreed with my diagnosis. All symptoms being referable to the abdomen, examination was limited entirely to this region. On Saturday I observed a marked distension on the right side of the chest. The mother's attention was called to this new condition, but she declared she had always noticed a slight deformity on that side and consequently refused even an exploratory puncture. Abdominal tympanitis and pain had now disappeared, making the side appear even more prominent than ever. On Sunday, Monday and Tuesday patient had chill each day in the afternoon, rapidly sinking. On Wednesday morning I discovered a most pronounced aortic murmur and prognosed a fatal result. Dr. Senn, of Chicago, was called in consultation and insisted on an exploratory puncture, which developed presence in pleural cavity of fetid pus. Operation by incision without anæsthetic at 6 P. M.; patient died at 9 P. M.

This was a strange case. Remember, he had all the symptoms of peritonitis, complaining at no time of pleuritic pain. He was ill but a week when he died.

The questions for consideration are: Was it possible for fluid to accumulate in three days to the extent of distending the afflicted side of the chest? What caused the fetor? Was it an ambulating pleurisy which, from some cause or other, had become purulent, and was this purulent fluid the cause of the disturbance below the diaphragm? Did a purulent condition exist below the diaphragm, inducing purulency in existing

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fluid in the pleural cavity? Did both conditions exist simultaneously, or, lastly, was it a case, perhaps, of appendicitis which ruptured into the right pleural cavity?

Case 10.—Girl, aged 8. Pneumonia followed by empyema after three weeks. No operation was permitted. Spontaneous rupture occurred. Complete recovery after six weeks.

Case 11.—Child, aged 18 months. History of fall down a step twelve inches high. Had been treated for teething. Careful examination developed dullness on left side of chest due to pus. I operated by simple incision during the first week of February. After two weeks patient had apparently recovered. Again fever set in, and, four days afterwards, bulging at point of incision. More pus was discharged and continued to discharge for two months. Finally parents consented to resection of rib, after which the little patient entirely recovered in two weeks.

Case 12.—Young lady, aged 15, pupil at St. Mary's Academy. In last week of January I was summoned to see the patient, who complained of violent pain in right side, with cough and expectoration, which latter proved to be the sputa of pneumonia; marked dullness over right side as high as nipple, with intense pain; also marked jaundice, causing a suspicion of a possible hepatic complication; four days later dyspnoea and marked cyanosis of lips and fingers. Dr. Montgomery was called in consultation. After two weeks an exploratory puncture showed pus. Jaundice and cyanosis and dyspnoea had now almost disappeared, although dullness extended as high up as clavicle and respiratory murmur was almost inaudible. The father, not permitting a radical operation, we removed by aspiration 32 ounces of thick creamy pus. After another week I insisted on a more radical operation, which was reluctantly granted. Dr. Montgomery assisted. The incision was made in the eighth intercostal space, just above the diaphragm in the axillary line. Fully as much pus escaped as during aspiration. Exploring with a sound the lung was found adherent at the fourth intercostal space. After first day irrigation was employed daily. The cavity held fully a half gallon, and it was always necessary to roll patient over on her side to allow the injected water to escape. After three weeks no more pus

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escaped. A serous bland fluid continued to ooze through tubes for two days, after which time tubes were removed and incision allowed to heal. At present marked collapse of right side of chest.

In conclusion let me say that whatever success I have had in diagnosing these cases was due to careful physical examinations and the use of the exploring needle in all doubtful cases—in all cases where fluid was suspected, and as soon as suspected, operating as soon as consent could be obtained.

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CHOLERA.

BY D. W. ROBERTSON, OF NORTH VERNON, IND.

I had thought of writing a paper for presentation to this Society upon another subject until I happened to notice in the papers that this dreaded enemy in our front has already left winter quarters and started on the spring and summer campaign. It then occurred to me that we could not better employ our time at this meeting than in discussing and deciding, if possible, the best means of defense in case our territory should be invaded. I have no special fitness for performing this self-appointed task, having had no experience whatever in the treatment of Asiatic cholera, but I hope to be able to present a few facts that will serve as the basis of what I hope will be a full and profitable discussion of this important subject.

Asiatic cholera is probably the most severe and fatal of all *diseases.* This form of cholera belongs originally to British India, and has *existed there for centuries.* The first European who visited that country found a disease prevalent there which, from the description he gave, we know to have been cholera. From its home in India it makes its dreaded incursions to almost every other portion of the world, desolation, death and paralyzed trade bearing it company. Wherever, in its travels, it finds a climate approximating in moisture, heat and filth, that of its nativity, it makes itself at home and establishes a new base of supplies. *It was unknown in Europe before 1829,* in which year it made its first appearance, having been four years on its journey. Sailing vessels and caravans afforded a very tardy means of communicating with the East in those days, but steam has revolutionized travel, and a journey to India to-day is a trivial affair as compared with such a journey then. Since that time we have been called upon to entertain *this unwelcome visitor*

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no less than four times, the last time being in 1873. The time consumed in reaching this country by this last epidemic was six months. This comparison enables us to see that there is an undoubted relation existing between the spread of cholera and facility of communication, and gives a hint as to the nature of the disease and a method for its prevention.

In looking into the history of this fatal malady we find that *high temperature, intemperate living, overcrowding, filth, and a general disregard for hygienic law, are favorable to the development and propagation of the disease,* but they are not the essential factors. It has raged in Russia in the winter seasons. The intemperance, filth and unsanitary condition of Naples were, presumably, no worse in 1873 than they had been for years previously, and yet in that year more than twenty thousand of its inhabitants died of cholera. There is a specific cause to which those above named are only auxiliary.

Sydenham guessed very closely at what Koch has demonstrated as a fact, but his theory did not form the basis for a rational treatment. It has only been ten years since the study of bacteriology rewarded the great German biologist by supplying "the cause" in the "coma bacillus," without which all others are impotent in the production of "*Asiatic cholera.*" You have only to read the history of this disease to see that all along it has been prophetic of this important discovery. I have not given a connected summary of the history of our five epidemics, thinking it superfluous in the face of the abundant literature upon that subject. It is enough to say that this history speaks eloquently in favor of a rigid quarantine, pure living, temperate in food and total abstinence from strong drink.

The importance of the discovery of the coma bacillis is questioned by but an insignificant minority of the medical fraternity. Scientific medicine has arraigned him and his brethren before the bar of medical opinion, charged in the complaint with a conspiracy to depopulate and render desolate every land to which they are admitted. We, who are not practical bacteriologists, will be forced to base our judgment upon the experiments and observations of others, and speaking for myself, I can say that I am convinced that the evidence warrants a

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verdict of guilty, as charged in the complaint. If, then, we have found the culprit, there can be no difference of opinion as to the penalty. Prophylactic law will be satisfied with nothing less than banishment.

Koch discovered some of the habits of this germ that are of almost as much importance as the germ itself. The conditions under which it thrives and reproduces its kind, as well as those surroundings that are deleterious to it, are of great clinical importance. Experiments conducted by observers independently have established the following facts: As to its natural history; it flourishes in an alkaline medium, while acids, both vegetable and mineral, in very dilute solution, are fatal to it. It requires for growth plenty of water and a temperature of about 100° F. It is not destroyed by intense cold. A temperature of 212° F. insures its destruction. Its excretions are poisonous, both to itself and host. Its length of life is not determined. It is most easily destroyed when first discharged from the bowels. Its home outside the intestines is cess pools, sewers and damp, filthy cellars. Its ideal home, however, is the intestinal canal. It is not found in the blood or lymph channels. These are the points of practical value. We come now to the symptoms by which we may know that the "coma bacilli" have domiciled themselves in the intestines. The premonitory stage consists in the occurence of diarrhœa. This is frequently mild and painless in character, and coming on after an error in diet it is frequently disregarded. The discharges in this stage are serious in character, resembling those seen in cases of cholera morbus, which the attack closely resembles. There is, however, no vomiting at first. This diarrhœa may last for two or three days and then subside, or it may prove fatal itself. Usually, however, other symptoms come up before a fatal issue.

The diarrhoea may come on suddenly in the night and be of a most violent character, the discharges being accompanied with great pain and containing large quantities of the disintregrated epithelial lining of the intestines. Copious vomiting of matters similar to those passed from the bowels next appears, accompanied with intense thirst, cramps of feet, legs and abdominal muscles, which occasion great agony. The surface of

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the body becomes cold and blue, skin dry and wrinkled, features pinched, eyes sunken, voice reduced to a whisper, pulse imperceptible, urine suppressed. In most cases the mental faculties are unaffected, unless in the later stages, when there may be more or less apathy manifested. In epidemics cases are frequently seen in which the collapse is so sudden and complete as to prove fatal in one or two hours. Reaction may now take place, and this constitutes the third stage of the disease. Pulse returns, vomiting and purging gradually cease, the surface resumes its natural color and becomes warm, cramps subside. The urine may remain suppressed for some time and when the kidneys resume their functions, the urine is often albuminous. Relapse may occur or the reaction may have been imperfect, when we have what is called the typhoid stage, which may prove fatal after two or three weeks. Diphtheritic and local inflammatory affections are prone to come up as complications and are attended with great danger. An aggravated case of cholera morbus presents most of the symptoms here enumerated, and when fatal, the pathological conditions are said to be the same as those of the disease under consideration, death, in each, being occasioned by the rapid dehydration of the blood. The rapid abstraction of the watery constituent of the blood being then a leading symptom, how do we explain it, and does the explanation furnish any clue to the proper treatment for its prevention? The theory that I have chosen as the most reasonable of any I have examined is, that on the introduction of these germs into the intestines, they, finding themselves in a salubrious location, multiply very rapidly, and the poisonous excretions of their own bodies act as irritants to the mucous membrane and are absorbed. These toxic products of germ growth, acting either locally or centrally, produce a general contraction of the vascular system through the agency of the vaso-motor nerves. The increased tension forces the blood in the direction of least resistance, that is into the capillaries. The intestinal capillaries being imbeded in loose tissue, being very numerous, more so than in any other part of the body, we can readily believe that under the excessive tension a large proportion of the blood is forced into them. The water pours through their overdistended thin

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walls into the bowel, carrying some of the epithelial layer with it. This epithelial membrane, the regulator of osmosis gone, the water pours into the intestine even after the bulk of the blood has been reduced sufficiently to relieve the tension. This blood-warm albuminous alkaline water furnishes all that a well regulated hard-working coma bacillus could desire, food, water, and his sewer flushed. As the abstraction of water is the etiological factor in the production of the other symptoms of cholera we must be most concerned in treatment in the prevention or allaying of this symptom.

Bearing in mind the theory I have just prepared, we will now consider the most important part of the subject—treatment. The first indication is to relax the tonic contraction of the vascular-muscular apparatus, and thereby lower blood pressure. Hypodermic injections of morphia meet this indication better than any other means, and incidentally remove other painful symptoms, such as cramps of muscles of the feet, legs and abdomen. The known power of this drug over the secretions would indicate its use here. It quiets the bowels, checks secretion, relieves pain, relaxes the vascular system and relieves shock. As the diarrhœa is the indicator of vascular tension and intestinal irritation, the hypodermic administration of morphia should be instituted at the very *first* appearance of this symptom, not waiting until organic changes have occurred that render treatment of any kind futile. If this indication is not met early, the condition resulting from the absorption of the ptomains in large numbers becomes extremely difficult to treat, from the fact that we know little, as yet, of their nature, chemically considered.

This subtle poison having once entered the blood, almost insurmountable obstacles present themselves, and prevent the application of an antidote. Some experiments are reported which seem to indicate that tanic, lactic, citric and carbolic acids are capable of forming with this poison insoluble and harmless compounds. If this be true, their use would be doubly indicated, as they are remedies of great value in destroying the germ itself. Citrate of iron has been successfully used in the later stages, its good effects being attributed to the iron. The acid component, probably, had more to do with

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the cures reported than is placed to its credit. It is reported that collapse has been successfully met with chloral injections, and, as it is decomposed in the blood, one of the products being an acid, I can conceive that it might do good; but, in a state of collapse, I should be very slow to use a drug whose known effects upon so plainly contra-indicate it. Dr. Semmola, Professor of Materia Medica and Therapeutics at the University of Naples, having made six thousand clinical observations, advises fasting from the very first appearance of the diarrhœa, which, he insists, is the sheet-anchor of the treatment. Milk in small doses may be given in twenty-four hours after the diarrhœa has ceased. The hot bath in the beginning stage he finds of great service, often finding it alone sufficient to check the bowels and start the patient on the road to recovery. The result of my investigations of the literature of this subject serves only to confirm me in my opinion—that our greatest victories are to be won on the fields of prophylaxis. By urging the adoption of strict quarantine, keeping healthy stomach in our patrons, preaching the gospel of "temperance in all things," enforcing the precept that cleanliness *is* next to Godliness, we may hope to accomplish much.

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ON THE AUTONOMY OF THE HEART.

BY GUIDO BELL, OF INDIANAPOLIS.

The human heart is the first organ in activity and the last one if life reaches its natural end. It is an untiring worker, day and night, and at a moment's notice able to double its strength. The heart is wonderful for its simplicity and great work.

Austin Flint in his text-book on human physiology says (page 52) the heart seems to act without any palpable excitation, and on page 57 he says the quantity and density of the blood are subject to very considerable variations within the limits of health, which, without some regulating influence, would undoubtedly cause variation in the heart's action, so considerable as to be injurious.

This is correct. I only attempt to formulate the first sentence more positively by saying the heart does act without any palpable excitation, and I will refer to some facts known to us from embryology and comparative anatomy, and also to some remarkable phenomena observed under different pathological conditions.

The fœtal life is a process of differentiation and placing of organs. To use a comparison, it is like a new store that has to be equipped with goods. There is no sale at the time, but the merchant is nevertheless busy in distributing his means wisely

The leader in the fœtus is the heart; it is the first organ in activity; that means doing its duty not only to its own welfare but towards the other organs. It receives its office from the maternal organism. The quantity and density of the

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blood do not vary in the fœtus; the variations have been balanced already by the maternal heart. The heart needs no regulating nerves, and the microscopic researches have not detected any such regulating nerves at the time when the heart begins to beat.

Since the discovery of Remak's ganglia, the opinion was maintained, especially by Volkmann, that these ganglia incite the action of the heart, consequently that the sympathetic nerve is the ruler of the heart. Probably Alexander Ecker, my esteemed teacher, was the first who studied carefully the development of the embryonic heart. Fano, an Italian scientist, has made close observations of the development of the chicken heart in regard to its innervation, but he has come to the conclusion that the heart beats before the ganglia have advanced and reached the heart.

Dr. His has followed up the investigations of Fano, and has come to the same conclusion as this illustrious author, and so has Romberg, of Leipzig Indeed, the heart of all vertebrate animals beats before it is in possession of the ganglia of Remak. The heart of the chicken beats from the second day on, although the ganglia grow into the heart not before the fifth day; the human heart beats, at the latest, in the third week, but the ganglia do not appear before the fifth week.

The heart's first action is a peristaltic progressing contraction, but with the development of the muscular fibres and trabecles, the heart has at once the same action as in the full-grown state. To prove that the embryonic heart has no other qualities than at a later period, comparative anàtomy and physiology have been resorted to and collateral investigations have been made on adult frogs, turtles, rabbits, dogs and so on.

It has been well known for a long time that the heart has a kind of an automatic quality. The heart cut from frogs, fishes or cats beats sometimes for a length of time. But it was thought that the ganglia near the auricles of the heart have this motor power. Unfortunately the experiments to verify this idea have been made at first on frogs. Dr. His has shown the difficulty of removing their ganglia without lacerating the muscles of the auricles. His experiments in which the laceration was avoided have proven the capability

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of contraction without the nervous influence. Gaskell made his investigations on turtles, with even more proof and equal success. Krehn and Romberg have examined the hearts of mammalious animals, and many others having experimented on dogs and rabbits state, without any restriction, that the heart beats after the removal of the ganglia.

The work of Wooldridge and Tigerstedt, as Romberg says, deserves especial credit.

And after all it has been proven by Onodi that the heart's ganglia are of sensory nature and in connection with the posterior roots of the spinal cord, and consequently the sympathetic nerve does not excite the action of the heart.

Both the pneumogastric and sympathetic nerves have some bearing on the contraction of the heart; they regulate it, with all probability, but they do not excite it.

I refer, in regard to these statements, to the most interesting article of Dr. Romberg, published March 20 and 27, 1893, on the request of the editors of the Berl. Klin. Wochenschrift. My paper was read already before the Marion County Medical Society when I received this article. The conclusions of such prominent scientists have strengthened a great deal my conviction I had derived from pathological observations.

I will report now the observations I have made in my medical practice and which have led me to the idea of the antonomy of the heart before I had learned of the experiments of the scientists.

Two years ago I had reported three cases* (two of my own) *where there was heard during the shock, a peculiar noise of the heart, audible at a distance. I said at that occasion, the heart can act, or revives for action, at a time when the whole nervous system, including the vaso-motor nerves, is under the shock, because the heart's action is independent from the nerve-system.* I had adopted this explanation for the reason that there is no other, and because it becomes fully evident to every one as soon as the idea is clearly conceived. At that time the autonomy of the heart was an assumption to explain a rare and most remarkable phenomenon,

* Cincinnati Lancet-Clinic, Sept. 19, 1891. The epicritical remarks given there have not been satisfactory.

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but the assumption has been based on scientific facts and has been verified since by the scientists referred to.

The first case I reported at that time is of Dr. Fronmueller, and is briefly this:

Case 1.—A young farmer fell under the wheel of a heavy wagon. Rising, he ran twenty steps after the horses and fell down unconscious. He was then carried home, and soon afterwards felt severe pains in the abdomen, but not at a circumscribed place. There was neither fracture nor wound; percussion and auscultation revealed nothing but tympanitis and a loud smacking noise, which could be heard at a distance of two yards; pulse 104, soft; respiration 44; temperature a little below normal, 36° C. Patient fell into a stupor again. He was restless during the night. The urine drawn from him in the morning contained albumen and blood. Nor at this time did the percussion reveal any enlargement of the heart; the peculiar systolic sound was still noticeable, but not at a discance. There was a tender red spot on the right hypochondrium; severe pains, intense thirst and anuria were also present; further, a pale, moist skin, pulse of 120 and respiration 40. The pupils were normal; whether they reacted to light is not stated. In the evening the smacking noise was gradually decreasing, and the second heart sound became audible. A slight icterus set in, and collapse and death took place on the fourth day.

The post-mortem showed: Pericardium contained very little of a reddish serum, the pleural sac about five ounces of the same fluid; kidneys and liver were anæmic, and the latter had a long gaping vertical laceration; the peritoneum showed some inflammation; the bladder was normal. Fronmueller did not believe that air had entered the pericardium, nor that gas developed therein was the cause of the peculiar noise, but suggested some other unknown cause.

Case 2.—In the summer of 1871 I was called in the evening to see a man who had been caught between a platform and a slowly moving freight car. After all his ribs had been broken he fell to the ground. He was then carried home. Two surgeons called in, returned satisfied with the statement of the family that the man was already dead. An hour or so later I found the man unconscious, dark blue in the face and the upper part of the

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chest; the eyes were very much protruded, the pupils middle-sized without reacting to the light; the respiration was weak, the pulse weak and thin. Later in the evening Dr. William B. Fletcher and myself found the man breathing with great difficulty, and restless; the skin of the lower part of the body was pale, moist and cold; the smacking systolic sound could be heard at any distance in the room. The heart-beat was elevating the intercostal spaces to the height of fully one-quarter of an inch, running from the second space downward like the motion of a crawling snake. The noise was noticeable all night, and could be heard the next morning when the ear was placed upon the chest; both heart-sounds could be heard; respiration was quick and short, pulse quick. The patient became conscious eighteen hours after the accident. Anuria and constipation lasted two days. Abdomen was not painful, but slightly tympanitic. A serious inflammation of the organs in the chest followed. In the third week dysuria reappeared for ten days; I had to draw the urine three times a day; it was cloudy and albuminous. After eight weeks of lying in bed, the man (he was strongly built and between thirty-five and forty years of age) was able to walk about. He is a drayman yet, and has been well and hearty ever since.

Case 3.—June 26, 1873, a tall, heavy, healthy man of middle age fell from a spring wagon upon his right shoulder. He broke several ribs, but the pleura was not perforated. It happened on the street in front of where I was driving. He was unconscious, and had a rapid, superficial respiration; the eyes wide open, without expression, and the pupils middle-sized and motionless; pulse quick and small; the skin was cool and pale. He was carried to his home, a few blocks away, and was put to bed in not more than ten or fifteen minutes after the accident. At that time the peculiar noise from the heart was heard near the bedstead, but not further than one step away. It was the same systolic, smacking noise of my first case, but weaker, and lasted half an hour; nothing of it could be heard when the family physician arrived. The man very soon recovered from the shock, and in due time from the injury, and is still an active and apparently healthy man.

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You may see a man after an accident lying on the ground motionless, unconscious, with eyes wide open, pupils middle-sized, not reacting to light, skin pale, cold, moist, respiration scarcely noticeable, temperature subnormal. He is under the influence of the shock you will say. If you hear from such an apparent corpse a noise of the heart, a smacking systolic noise of the heart, what is your impression? If this noise appears not immediately after the accident, but later, and if this noise disappears with the shock, what is your explanation? Mine is this: During the shock all arteries are collapsed; the heart must not participate in this loss of function, at least not in the same way and degree, and sometimes revives only to meet an increased resistance in the arteries. Its capability of doubling its energy will cause its unusual activity, especially because it is not restrained by its regulating nerves. Hence the noise and hence its violent contraction elevating the bed cover. I conclude: (1) The peculiar noise of the heart heard at a distance appeared later and stronger according to the severity of the case; (2) the noise was always systolic; (3) it appeared at the time of reviving and disappeared with the decreasing shock; (4) it is a favorable symptom. Now I proceed, saying that the peculiar noise of the heart heard at a distance is really a secondary symptom of the shock, and if this be the case, the heart's action must be independent of the nerve system.

Not long ago I observed a case of apoplexy which seems to me to prove fully the independence of the heart. The case is briefly this: On January 4 this year I was called to see John M. at 10 o'clock in the evening. I saw the man, who was sixty-three years old, half an hour later lying in bed without any sign of life. He was walking the floor after an ordinary day's work, apparently well and in his usual way, when he fell backward without stumbling and lay perfectly motionless. This had happened a short time before 10 P. M. I found him at half past 10 o'clock with eyes half open, pupils moderately dilated, immovable, lids languid, lips cymotic, cold skin on face and extremities, temperature in axilla below 95° F., no respiration (different examinations were made) no pulse at the wrist, but the heart was beating regularly, not much weaker than in life, twenty-one beats in fifteen seconds. I counted

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the heart's sounds seven times and also my own pulse, which was eighteen beats in fifteen seconds. The man was dead notwithstanding the beating heart. I injected gr. $\frac{1}{100}$ of nitroglycerine hypodermically. A few minutes after 11 o'clock the heart's action became irregular and soon ceased.

It is generally conceded that pathological facts in human beings better prove physiological laws than experiments made on animals. We find cases of heart beating when the whole nerve system is paralyzed, and others where the brain and its dependencies are already dead. We also see the heart beating in the embryo when there are no nervous connections with the heart, and see it in animals beating after it is cut from the body. All this makes it evident that the heart acts without any palpable excitation and is regulated only by the sympathetic and pneumo-gastric nerves.

DISCUSSION.

Dr. Allison Maxwell, of Indianapolis.—Mr. President: I had not the pleasure of hearing Dr. Bell's paper before our County Medical Society, and I am very happy to have had the opportunity of hearing it this afternoon. The theory of the autonomy of the heart I have never heard presented before, I believe, and while to us it may seem a little strange that the nervous system presides over all the organs of the body, speaking in general, yet, upon the experiments which Dr. Bell has quoted from his own observation, and which he has reported, we are almost compelled to believe that the heart may go without something like what we term central nervous force, that is, it may go of itself. However this may be, we are all compelled to believe from our own experience that the heart is greatly influenced by the nervous system. We know it is, although it may be able for a little while to get along without the aid of the nervous system, or at times may be able to, and this brings me to the point which I wish to speak of, and that is the effect upon the heart of the series of la grippe attacks or sieges, which we have had in this country as well as elsewhere. We have had fatty degeneration of the heart as a result of la grippe in a great many cases, induced, I think, largely by

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the effect of the poison or germ upon the nervous system. I have four cases now—two of them are serious—of heart effection largely induced, if not entirely so, by the effect of la grippe upon the nervous system and in turn upon the affection of the heart. You have all seen these cases. You are seeing them every day, and I think we will continue to see them for some time to come, even though we may not have another attack of la grippe in this country. The effect upon the heart, as upon many other organs of the body, has been most baleful, as the heart is the citadel; when it is attacked, the whole fort, we may say trembles; when it succumbs, of course the fort surrenders. It is upon this point especially, that I wish to say a word and ask if the experience of those present has been in the same line, if their observation has been the same as to the effect of the grippe in producing fatty degeneration of the heart with all its concomitant symptoms.

Dr. J. W. Hervey, of Indianapolis.—Mr. President: I do not desire to be conspicuous in controverting any of these questions, but I am glad that Dr. Bell has the vim to present these original opinions, differing very largely from most of the literature on the subject.

We find the sympathetic, and the spinal accessory, and the pneumogastric, which the Doctor refers to, all have a very material influence on the heart. It is reported by Dr. Livingston that in bringing negroes from Africa, taking them away from home, they became so much affected in mind that they actually died from what was supposed to be the effect of that isolation on the heart. Whether it be true or not, it is given as history; and these questions should all be thoroughly investigated by the profession to-day, for there is no more important subject before the physician of the age than that of heart disease. We read nearly every day of what is called "heart failure," complicated cases of endocarditis, which baffles the skill of the best physicians to detect; and while we are powerless to cure it, certainly it is our sternest duty to investigate the diseases connected with the heart and all things that affect the heart; and I am very much pleased with Dr. Bell's originality. I know he is a close observer and can compliment him on his paper. I only mention these things to bring before the Society the

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vast amount of literature that has to be investigated in getting at the statistics of treatment of disease of the heart, and investigating it systematically and therapeutically.

Dr. Leech, of Crawfordsville—Mr. President: I have always been in the habit of saying that everything was slave to the nervous system, and I have never been convinced that the life of the body was in the blood. I think hereafter I will not say that. I will say, except the heart.

Dr. Guido Bell, of Indianapolis—Mr. President: I am thankful for the discussion, especially for the remarks of Dr. Maxwell, and as he asks about our experience in regard to la grippe and its influence on the heart, I refer him to an article I wrote some years ago, just when la grippe was beginning to reach over into this district. I published then eight cases on "Affections of the Pneumogastric Nerve." We have very different affections of the pneumogastric nerve, and if I refer the two cases of insanity reported to the consequences of the la grippe, then I say la grippe had greater influence on the nervous system than any other, more than on the muscles, or the blood vessels. I thank Dr. Hervey for his remarks. It is gratifying for us younger men to feel that our endeavor to go a little ahead is appreciated by the more venerable and older practitioners.

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FRACTURES OF THE SKULL WITH INJURIES TO THE BRAIN.

BY C. S. ARTHUR, M. D., OF PORTLAND, IND.

In presenting a paper on injuries of the skull and brain, it is not my purpose or intent to enter into a detailed description of the many various injuries that each are liable to, for that has been fully and satisfactorily done by our standard authorities on surgery, and is easily obtained by all who wish to know. I will merely, in a brief manner, relate the history of some interesting cases that have come under my observation and care during the past thirty-seven years, but will promise not to weary you by recounting all such cases.

1. In September, 1854, I was called to see M. J. B., age twenty-six years, who, while working on a railroad grade, quarreled with a fellow workman, and was knocked down by a blow on the left side of the head with a spade. After the injury he worked a short time, became very sick, lay down and was soon unconscious. Some six hours after the blow I found him in profound coma, with slow stertorous respiration. There was a puffy swelling on the left side of his head about two and a half by three inches in diameter. I could not detect any depression of the skull, yet the symptoms indicated a fracture. I returned to town and obtained two small firmer chisels and a small gouge from a cabinet maker, returned, made incisions and found a depressed fracture about two and a half inches in its greatest length by one and a fourth inches in width, the central part being over the coronal suture. With the chisel, gouge, a pocket knife and a small hammer and dressing forceps I removed about one-fourth of the depressed bone, and I was then enabled to raise to their places

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the other broken pieces. Found that a thin piece of the inner table had been detached and driven through the dura mater, which was removed, followed by a small amount of brain substance. The work was done by the light of two tallow dips and without the use of chloroform, and by the time it was completed the patient was quite conscious. The wound was dressed with cold water and in a short time he was well; now resides in an adjoining county and has never experienced any ill effects from the injury.

2. In October, 1856, J. McN., aged fifteen years, received a blow from a falling limb, on right side of head, which caused him to stagger and fall. But little was thought of the injury until the fifth day afterward, when positive symptoms of compression occurred. There was then present some swelling at point of injury, over the right parietal bone, near the lambdoidal suture. Made an incision and found a depressed crucial fracture. With a chisel, pocket knife and gimlet removed one of the fragments of bone; there was quite an amount of coagulated blood removed, the other fragments of bone raised, edges smoothed, wound treated with water dressings and boy made a satisfactory recovery and served as a soldier in the late war.

3. On December 19, 1861, was called to see J. G., aged twenty-seven years, who had received a blow on the head by a limb of a falling tree; had been unconscious from time of injury, and was then in a profound stupor. Found a doughy swelling on the right of crown; made a cross incision and found an oval shaped piece of right parietal bone about one by one and a fourth inches in diameter driven down or inward, on one side, nearly the thickness of the skull. Not being able to raise the depressed bone with anything there obtainable, I returned home and constructed a trephine (which I here exhibit) all of which was made with my hands, except the wooden handle, which the blacksmith volunteered to make for me. In about three hours I returned, some eight miles, and with this rude instrument removed two pieces of the unbroken bone before I was able to raise the fractured piece. There was a portion of the inner table detached and it had perforated the dura mater;

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there was copious hemorrhage. He made a rapid and complete recovery, enlisted and served three years as a soldier, and now resides on his farm three miles west of Portland.

4. In October, 1862, A. S., a private in Co. F., 75th Ind. Vol., while engaged in a friendly scuffle with a comrade, was thrown with head against a stone, was somewhat stunned at the time, but was soon feeling quite well until about ten days thereafter, when he experienced a severe headache, which gradually became worse, until the night of the twenty-first day after the injury, when he had convulsions, followed by stupor and symptoms of compression of the brain. Upon inspection found a space one and one-half inch by two inches over central part of left parietal bone, where the most of the hair had fallen off, and the scalp was somewhat elevated and felt soft; learned it was the point of contact with stone. Expecting a fracture of the bone, I made an incision, but found none, yet there was pus between the pericranium and skull. Removed a large sized button with trephine, from which sprang quite a quantity of pus from the space between skull and dura matter; on second day there was an increased flow of pus for a short time. Patient made a rapid and full recovery.

5. On September 19, 1863, J. B., a private, was brought to hospital, near Crawfish Springs, Ga., with a bullet wound in forehead below the hair on the left of the median line; was unconscious, and, it being regarded as a fatal wound, he was placed with four others who had bad wounds in their heads and brain. During the following night, which was quite cold, he made great complaint by moaning; could make no reply to questions. With the hope of relieving his suffering, I turned him over, and in doing so I raised his head so that he could see a fire that was burning a short distance from him. He at once got up, went to the fire and put his hands in the blaze and had to be restrained to keep him out of the fire. While he was stooping over near the fire, I noticed quite an amount of brain substance escaped from the wound onto the ground. He could not talk or drink water or take any food when offered him, but seemed to be very much interested in seeing others drink. During the afternoon of the second day I put a cup of water to his mouth, and, upon getting a taste, he took the cup and drank

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freely. On the third day after the injury I gave him chloroform, and, after enlarging the opening with trephine, removed a minnie ball, several pieces of bone and a portion of hat lining. After which he gradually improved, busied himself giving water to other wounded, and upon the 12th day was able to sit upon the seat of an ambulance and ride to Chattanooga, a distance of about thirteen miles. Apphasia existed, as well as a complete inability to write his thoughts. I learned some months afterwards that he fully recovered from the wound and was discharged from the service by reason of his inability to talk.

6. In August, 1864, while in front of Atlanta, Ga., on the skirmish line, Captain B., of the Twenty-first O. V. I., was wounded by a conical rifle ball entering the frontal bone, just below the hair and to the right of the middle; was brought to the hospital, where he was examined by Dr. J. Arter, the surgeon of his regiment, and Dr. Sloat, both very competent and experienced surgeons. After passing the little finger into the wound, they announced that it was necessarily a fatal injury, and such word was sent to his company. On the following day he was rational, and on the third day after he was wounded, contrary to the advice of other surgeons, I gave him chloroform and enlarged the opening in the bone, removed several pieces of the bone, but found no ball; there was some brain substance escaped. On the following evening his lieutenant came to inquire as to his condition, and exhibited the bullet, which he had withdrawn from his head, inclosed in a portion of the leather lining of his hat. The Captain recovered rapidly, returned home, and, I learned, enjoyed fair health, with all his mental faculties unimpaired, for about seven years, when he fell from a horse he was riding, with supposed apoplexy, and died soon after.

7. On August 30, 1867, M. F., aged twenty-four years, sustained a compound fracture of the left parietal bone by being stricken with a rake head, which drove a piece of bone $1\frac{1}{4}$x$1\frac{1}{2}$ inches through the membrane into the brain nearly the full width of the fragment. The opening in the skull had to be enlarged to permit the withdrawal of the piece; there was a small amount of brain adhered to and removed with the bone. The wound was dressed with cold water; he soon became

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rational, and bid fair to recover until the 5th day of September, when he had a severe chill, and soon after hernia cerebin developed, and on the 8th he died. In this case there was but the one piece of bone detached, it being larger on the inner plate in all directions than the outer table.

8. On October 11, 1869, Miss K., aged eighteen years, was thrown from a horse which she was riding, and kicked on the head just in front of the upper part of the left ear. After enlarging the opening already in the scalp, I found the skull depressed and impacted to the extent of 1¼x2½ inches. Removed a button with a trephine, and, after raising the broken pieces, they all became detached and were removed, being parts of the temporal, parietal, frontal and spenoid bones. The dura mater was pierced by a sharp piece of bone, but no brain substance was lost. This young woman was then about four months advanced in pregnancy; made a good recovery, carried her child to full term, was married before the birth of the child, and now presides as mother over a happy family, in full possession of all her faculties.

9. On October 9, 1871, E. F., a little girl, aged seven years, was amusing herself by standing upon the beam of an old-fashioned loom that was leaning against the house, and would push the loom (the top of which was above her head), away from the wall of the house, and then let it fall back. On pushing it too far away, it fell to the ground. The child reached the ground before the loom, and the top, or cross-piece, struck her on the forehead, fracturing and depressing quite an amount of the frontal bone. Made incisions and removed several pieces of bone, and raised the others to their proper positions. One piece had been driven through the membranes into the anterior part of the left hemisphere, and a small amount of brain followed the removal of the bone. The little patient made a rapid and complete recovery.

10. On the 23d of March, 1873, J. A. S., aged 25 years, was struck on the head by the limb of a falling tree, and sustained a compound fracture, involving the greater part of the right parietal and part of the frontal bones. Upon enlarging the scalp opening there was found two pieces of the central part of the parietal bone had been forced through the membranes and

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into the brain. All detached pieces of bone were removed and the depressed portions raised. Hemorrhage was quite free, and as much as a teaspoonful of broken up brain escaped through the rents in the membranes. Wound was treated with water dressings, and in about forty hours he became rational, and in a reasonable time he was quite well, with an opening in his skull 2½x1½ inches. His mental faculties were not impaired.

11. On October 15, 1871, Mr. E. H. C., aged 34 years, while engaged in constructing a railroad bridge, had a large piece of timber strike him on top of his head while standing on a scaffold and near a bent that was in position. After the timber struck him it forced him down about ten inches, when the stick caught on top of the bent or cross timber, and he fell to the ground, a distance of about eight feet; was picked up unconscious, and when I saw him a few hours afterwards, there was present positive symptoms of concussion. He had hemorrhage from both ears, nose and mouth; also vomited blood. Regarding it as being a case of fracture of the base of the skull, and there being no indications for surgical interference, and, believing the case would terminate fatally in a short time, the treatment was entirely expectant. Saw him as often as every other day for two weeks. After the second day there was fever, and for several days there was a watery discharge from his left ear. After the third day he could and did take liquid nourishment. On the ninth day became somewhat rational, and continued so. On the twenty-eighth day was permitted to sit up, but was not allowed to walk about until the end of the sixth week. Had divergent strabismus and total loss of sense of smell.

12. On September 14, 1883, Mr. J. K., aged 28 years, fell from a moving freight car to the ground, striking on his head; was picked up unconscious and bleeding from both ears and nose. I saw him a few hours after injury, there then being present symptoms of concussion of the brain. Believing there was fracture of the base of the skull of a serious nature, did not expect him to survive many days. Two days after was again called to see him; was yet in a stupor; one pupil widely dilated, the other contracted; also one side paralyzed, and bloody water oozing from his ears; had fever. He being unable to swallow, directed rectal medication and alimentation,

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depending on aconite and veratum to control the fever; was kept quiet as possible and in about two weeks became rational at intervals, and in six weeks was able to be upon his feet; in a few months was quite well, began the study of medicine and is now a practitioner.

13. On September 3, 1884, Mr. P. C., aged 27 years, was kicked by a horse on left side of head, and was found lying in the stable in an unconscious condition. When called an hour later I found him in a profound stupor, with puffy breathing, etc. The left side of head was covered with coagulated blood and brain. After cleansing and removing hair, I sufficiently enlarged the scalp opening, and found the skull so broken, and pieces detached that it was necessary to remove all from the anterior part of the temporal ridge of frontal bone to a point about three inches above and one-half inch back of left meatus externus auditorum, including part of the squamous suture and upper portion of temporal bone. There was a rent or tear through the dura mater, nearly two inches in length, through which quite an amount of brain had passed. After cleansing the wound, the edges of the dura mater were brought together and held by five stitches; the scalp wound closed, with drainage provided. In 24 hours became rational, and continued so. Was quite well in 30 days.

14. On April 23, 1885, Jimmie H., aged nine years, while walking on a railroad, was struck on the left side of his head by the steps of a passenger coach going at a rapid rate of speed, and sustained a fracture of the left side of his skull, involving a portion of the frontal and parietal bones, which were depressed and impacted to the extent of $1\frac{1}{4}$x$2\frac{1}{2}$ inches. Removed two small buttons before being able to remove the detached bone and raise the depressed pieces. The pieces are here for your inspection. The membranes were unbroken, but he did not fully rally at any time, yet so far regained consciousness as to correctly ask and reply to questions; he was restless and uneasy when awake, and at times slept so soundly that it was difficult to arouse him. On the 27th, four days after the injury, he had a rigor, followed by fever, and on the 30th died from pyemia. Autopsy revealed a fracture of the

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base of the skull, extending through the foramen magnum, with a quantity of pus in the same region.

15. On January 22, 1886, D. D., aged twelve years, while engaged at work in a factory, was stricken by a piece of a cast iron wheel, which bursted while revolving rapidly, and sustained a compound fracture of the frontal and left parietal bones, involving the left angular process, the temporal ridge, and a portion of the left temporal fossæ, and the anterior part of the left parietal bone, just above the squamus suture. The detached bones were removed, when it was noticed there were two points where the membranes of the brain had been perforated, and through the larger and posterior opening brain substance had escaped; an opening in the skull 2½ inches anteroposteriorly by 1¼ inches vertically, was left. The wound was dressed aseptically, and the patient did fairly well, soon becoming quite cheerful; the external wound entirely closed, and the patient apparently, was about well; ceased to visit him about the middle of February. On February 26 he had a chill, followed by fever and severe pain in the head; on the night of the 27th he had convulsions. I had, on the day before, noticed swelling at the seat of injury. On the 28th the scalp wounds were forced open, and on March 1st there was a large mass protruding through the skull opening; he had occasional convulsions and was very delirious. Thinking there was pus that caused protrusion of the brain, I passed an exploring needle into the brain to a depth of near an inch in a direction inward and backward, and failed in finding pus; yet on the second day thereafter, there being further bulging, I made an opening with a narrow bistoury, and quite a quantity of pus escaped. Convulsions ceased, fever subsided, and by the middle of April the patient was quite well, and has continued to have good health since, except defective vision of his left eye.

16. On December 25, 1888, Oscar R., aged 10 years, was injured by the breech pin of an old gun blowing out and being driven, the large end first, into his brain over the left eye. When called, found the boy unconscious and with the usual sypmtoms of concussion, forehead and face covered with blood, burnt powder and portions of brain. There was less

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than a half inch of the small end of breech pin protruding through the wound, just above the left eyebrow. On taking hold of the breech pin for the purpose of removing it, it was found to be so impact that it was not readily movable, and, upon closely inspecting the end, I noticed that the upper side of the pin was upward in the head. Thinking the large end was impact in the skull at the base, I caught the end with strong forceps and by a slight rotary motion and lifting, the missile was readily loosened and removed. Several pieces of bone, including the supra-orbital ridge and plate, together with several pieces of wooden gunstock, were then removed, also portions of the brain. It was then observed that the optic nerve of the left eye had been severed and that the eyeball could be readily turned up and exposed to view, the severed nerve being of some half an inch in length. The wound was dressed by the edges being brought together with stitches, drainage being provided for. The lad made a rapid and complete recovery, and the left eye retained its normal appearance as to color for more than a year, when it gradually changed to a light, yellowish pink color, and as yet has become but slightly atrophied. About ten months after the injury another small piece of wood came through the cicatrix. Mentally, and in all other respects, except the loss of vision of one eye, the boy is all right.

I herewith make exhibit of the breech pin and the greater number of pieces of bone and pieces of the gun stock that entered his head.

DISCUSSION.

Dr. J. L. Thompson, of Indianapolis—Mr. President: I am obliged to the Doctor for his paper. It shows the resources of the country physician. It shows the mechanical genius and the inventive genius on the part of the Doctor, and shows how a person must be prepared. A person, to be an operating surgeon, must be a mechanic, and have mechanical talent. One who has it not may just as well give it up. It shows the necessity of being prepared for these emergencies. The Doctor had to take the best at his hands, and, to do it as he did, I

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think it is remarkable. I think now in this day and age we ought not to read of a doctor using a chisel and hammer on the brain. I saw a good deal of this at the siege of Vicksburg and subsequently in operating upon the mastoid bone, but I never found a case where the cold-chisel and gouge comes in that we could not use the trephine. The Doctor mentions the use of the cold-chisel and gouge on the mastoid process, and, although he had not the trephine, it don't look scientific. The Doctor's paper was a remarkably good one, and shows him to be possessed of a very great amount of inventive genius.

Dr. Guido Bell, of Indianapolis—Mr. President: In reference to this paper, I would like to speak some words on a case that came to me some time ago in my practice. It was very interesting, and that is the reason I now speak of it here. She was a girl of nine years, a bright girl, playing in a yard, and fell upon a board. She had some pain in her head and went home, eight squares distant. Next day she had headache, and I was sent for, and I found a large tumor on the right side. I opened that, and blood escaped, and some water. I found a deep depression of the bones, but there were no symptoms of pressure to the brain, and all along, as the child was living, I did not see any symptoms of pressure, and for that reason I did not interfere. The case is remarkable for the reason that the child was born hydrocephalic. I was there when the child was born, and it was born hydrocephalic. She was small, exceedingly small, the head not much bigger than a base-ball, and the child was moaning all the time for more than a year, but improving generally. Its health was otherwise good, but it was always moaning, and had that peculiar look of an idiot. The child learned to walk, and in due time to talk, but there was always a headache, and when the child was six years old she went to school, and was a bright, good scholar, showed no symptoms of any brain trouble, except some headache, occurring very frequently, and at times her mental functions were impaired. She didn't know just what was asked, or what to say. That passed away quickly—came on suddenly and passed away quickly, and that was the only cerebral symptom until she met with this accident. The injury was the cause, finally, of her death. On the 10th day the fever

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was high, but it was only the last two days that there were any cerebral symptoms. I have not seen at any time any symptoms of pressure. The pupils of the eyes did not show anything. The respiration was unimpaired, and so on. The skull of this girl was thin; not thicker than ordinary pasteboard, and pellucid. I could read some places through the skull. The peculiarity of this case is that it has some bearing on that operation especially performed by Dr. Wyeth, of New York; and perhaps it has some bearing in favor of such interference, and perhaps another can make something out of it. I report the case just as it is, and, if any are interested, I can give them the details. I stick to the principle that if there is no pressure to the brain, I would not interfere with trephine or otherwise.

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LA GRIPPE.

JOSEPH GARDINER, M. D., BEDFORD, INDIANA.

For innate depravity no other disease is worthy of comparison with la grippe. For the number of its victims, living and dead, it stands alone. When Pandora's box was opened la grippe was the most active in getting out, and so swift of foot and fleet of wing was he, she or it, that no other disease has ever been able to compete when la grippe has been entered for the sweepstakes.

The etiology of this "sum of all villainies," in the line of morbid processes, has more symptoms to select from to form a verdict than any other known disease; and it may be that "job lots" of remnants of a half dozen diseases contribute their scraps to make up the "crazy quilt" that so many of us have slept under. Taking it as we see it, after three years of its unwelcome presence, one is constrained to apply Marshal MacMahon's descriptive verdict of "typhus" to it. He said of typhus, as I say of la grippe, "that it always kills its victim or leaves him a hopeless imbecile; I have had it, and know."

That it has for its propagating element one or more species of microbes I think no one, in the light of recent discovery, will be inclined to dispute. Whichever turns out to be the essential or pivotal microbe, whether it shall prove to be an amœba, as the plasmodium of Laveran, that produces malaria, or its congener that produces dysentery, or a bacillus, micrococus, diplococus, spirillum, or what not, or several of them joined in an infernal conspiracy to offer a sweet sacrifice to the shades of Malthus; it is beyond dispute the "shears of the cruel Fates" clipping the thread of life.

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Taking its symptoms and morbid processes, you can get some from almost all the leading diseases, and many of the rare ones. If there is a locality, organ or viscus that has not been attacked by either its pains, inflammations or aches, the writer has failed to find it in any existing work on descriptive anatomy. In this respect la grippe is a most impartial disease. Like the negro's double-ended rabbit trap, "it catches 'em comin' and goin'."

Without attempting to follow the disease through its multitudinous sneezes, its flowing tears and its perpetual coryza, its basal and frontal headaches, its lateral cephalic pains, its occular fullness, its spinal and lumbar tortures, its algid depressions, its horripillations, its cardiac failures, its tooth-aches in the shins, knees, elbows, shoulders, or other available spaces not already preëmpted by pains or inflammations, I am constrained to say that the subject of an unstinted, original prize package of la grippe can look Death in the face with more indifference than the sufferer from any other disease in the whole realms of pathology. With pains and aches in several parts of the encephalon, with a forming abscess in one ear, usually the left, and a general feeling of desperation; to have to cough and sneeze in an unstinted and energetic way, makes living a thing not desirable, and hardly to be tolerated.

In severe cases a distinctive pathognomonic odor is well marked. The secretions and excretions, notably the perspiration and alvine dejecta, have, and continue to hold for a long time, an odor unlike that incident to any other disease. This is probably due to the products of the specific ferment of the disease, solely or in union with other products of microbes of a non-pathogenic character, and perhaps with vitiated mucus, bile and intestinal waste.

Generally the tongue is about a third larger than you have any use for—unless to abuse the disease and "nag" your best friends. It is flabby and covered with a white scum.

The treatment is largely expectant, consisting of confinement to a comfortably warmed room, supporting diaphoretic drinks, mostly an avoidance of taking cold, and a judicious

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use of the salicylates, derived from oil of wintergreen. Depressive remedies must be, if used at all, administered guardedly. The ptomaines of the disease are sure to give you all the depression you want, and make you wish the supply had run short.

With these points in view you will escape many cases of heart-failure, and fewer physical wrecks will be strewn along the highway of life. In most cases the temperature fluctuates from a few degrees above to a slightly sub-normal depression.

The coal-tar derivatives should be, if used at all, used with great caution.

In la grippe I would rather see a temperature of 103° than of 97°. In the resultant lassitude following the disease we find a compensating safeguard against violent exertion that has often prevented heart-failure and death.

The "don't care" feeling is a safety-valve until strength returns.

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ACUTE LOBAR PNEUMONITIS.

BY J. R. BALL, LEBANON, IND.

Acute Lobar Pneumonia is an acute general disease, due to a special organism, and characterized by an inflammation of the vesicular structure of the lung, with an exudation into the alveoli. It is marked by great constitutional disturbances and the involvement of a single lobe, the whole lung, or both lungs, in the inflammation.

The pathological condition of the first stage, known as that of congestion, or engorgement, is marked by the ordinary changes of inflammation in any of the tissues of the body. The involved portion becomes very vascular, the capillaries are greatly enlarged and the air cells are filled with a serous, blood-stained liquid. On examination with the microscope the capacity of the air cells will be found considerably diminished by the greatly distended capillaries, and early in the disease some of the cells may be collapsed from pressure. Serum, red blood globules, exfoliated epithelium cells, and a few white blood corpuscles and pus cells are found within the alveoli.

In the second stage, that of consolidation, or so-called red hepatization, the bronchioles and air cells are filled with a solid exudation and are airless. The lung tissue is easily torn, while the solidity, firmness, weight and volume are increased.

A microscopical examination shows the air cells and small bronchi to be filled with a substance made up of white and red blood corpuscles, pus cells, micro-cocci, through which is a network of fribrillated fabric. The epithelial cells are of various shapes, containing at first a certain amount of fibrinious material. They become granular, and finally fat globules are formed in them. They become discolored by absorbing

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the coloring matter of the red corpuscles, which are found in large numbers in this exudation.

The third stage comes on slowly, there being no defined transition from the red to the gray hepatization. It is characterized by the continuation of the emigration of the white blood globules and an effusion of serum, forming a kind of pulpous mass, which is more suitable for absorption. The congestion is diminished, the fibrin degenerates, the red corpuscles lose their color, and the leucocytes rapidly undergo fatty changes.

By the microscope it is seen that in the air-cells are a large number of mono-nucleated cells, micrococci and the inter cellular elements have become granular. The alveoli are filled with a semi-fluid mass, in which are numbers of discrete oil globules and protein granules freely mixed. While the three stages are described separately, the changes come on very irregularly in the different proteines of the affected part.

If the termination is favorable, the exudation is gradually taken up and the function of the lung is restored.

Pneumonitis is dependent upon a special causative agent, called pneumo-coccus. Bad ventilation, overcrowding, and uncleanliness are also important factors, while diptheria, measles, grippe and other acute infectious diseases are predisposing causes. The resemblance of pneumonitis to acute general diseases, in its distinct typical cause and symptoms following in regular order, support the theory of Klebs, Friedlander, and others that it is due to a special micro-organism. This is also supported by the observations of Kellar, who detected pneumo-coccus in the walls of the Amberg prison, where 161 cases had been treated in the spring of 1880. He cultivated the germs taken from the walls, and successfully inoculated them.

The symptoms of this disease are well known, usually beginning with symptoms of an ordinary cold, or may begin with a sudden chill. The temperature range is from 101° to 103°, or may reach 105° or 107°.

The physical signs, such as dullness over the affected part, crepitant vales during the first stage, and bronchial respiration and mucous vales in the second stage.

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The diagnosis is usually easy, and we will occupy no more time to consider it.

In treating this disease, we should ever keep in mind to support our patient. Acentanalid and quinine should be given to reduce the temperature. Opium is to be given to control pain and restlessness, but this must be given with the greatest care, as the chief danger is heart failure. Cardiac tonics are to be employed. Blisters are an abomination, and should not be used. Turpentine steepes, followed by hot water dressing, may be used to great advantage. As second stage comes, all cardiac sedatives should be withdrawn, unless the temperature exceeds 103° or 104°. Absolute rest should be enforced; the patient being moved as little as possible. If signs of heart failure are present, under no circumstance should the patient be even raised in bed. Digitalis and murate of ammonia should be given. The diet must be nutritious, and small amounts of alcohol may be given. The sick-room should be well ventilated, with a temperature of about 70°.

The main objects of treatment are to control pain, reduce temperature, support your patient, and compel absolute quiet.

DISCUSSION.

Dr. J. B. Berteling, of South Bend—Mr. President: I have listened to the paper with considerable interest. It is a very thorough paper so far as etiology is concerned, but it strikes me that when we have a patient with a temperature of 104° with lung fever, that the patient does not feel more comfortable by the application of hot poultices.

For the last two or three years I have treated at an institution where I had full control of my patients, at least two dozen cases of lung fever with rust-colored sputa, or prune juice, primary chill; and if all these symptoms are indications of lung fever, they certainly had it. I applied ice cold water from the very beginning. Ice from the commencement until the temperature was brought down. I think that acentelide phenacetin, in fact all coal tar products, are good in their

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place. I think they should be used sparingly in lung fever. Veratrum I think is very good. I would give it in connection with cold water applications, two or three drops every two or three hours until the pulse drops to 70° or even 60°, then give it in smaller doses, or give digitalis, and at the same time, alcohol. In the first stages I would not give alcohol. It is not necessary when you have a bounding pulse. When the pulse drops to 70° give digitalis and alcohol and veratrum viride. In four days you will find, if the case has not abated, that resolution is going on.

Dr. T. L. Leech, of Crawfordsville—Mr. President: I came in late; I left a patient at home with a temperature of 106°; he has been sick about four days with pneumonia, with excrutiating pain. I have had great trouble to control the pain; have had to use opium freely; and if it is to be used sparingly and cautiously, as suggested by the paper, I would like to know what is the danger of giving opium to the patient. I think the gray-haired physicians here will remember the time when it was the sheet anchor in these cases.

Dr. Jno. W. Hall, of Portland—Mr. President: I rise to make a suggestion on one point. The paper was a most excellent one, and the treatment, I think, was excellent. I think very much depends upon the surrounding of the patient in one particular, and that is the temperature of the room in which the patient is confined. I believe in hanging a thermometer in the room and regulating the temperature by it. We have pneumonia, a large part of it in cold weather; watch the thermometer and hold the temperature at about 70°. Many times you will find patients are restless and can not sleep without an opiate. If you will be careful about the temperature and hold it at that point you will find that it will lessen a good deal the need of the patient for an opiate in order to secure rest. Also moisture in the atmosphere in the room is important; when there is a little steam it is helpful. I think those two points are, in the treatment, worth being remembered.

Dr. J. B. Sparks, of Carthage—Mr. President: I would like to emphasize the gentleman's remarks in regard to the temperature of the room. My observation in pneumonia is that there is nothing more important than cool temperature and pure air,

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avoiding dust, and if I would suggest anything in addition to the doctor's remarks I would even say bring the temperature down to 65° or 60°. Cover the patient up warmly, if the weather is cold, as it usually is, but keep the air cool. We must remember that a greater or less part of the lung is rendered incapable of breathing. For instance, we will say one-fourth of the breathing capacity of the lung is destroyed for the time being. Now, if we can contract the volume of the atmosphere by cooling it so that we contract it one-fourth, have we not compensated for the loss of the lung capacity? We know that the volume of the air contracts as it gets colder.

In regard to the treatment, I like the treatment suggested by the paper very much, except it seems to me it was a little bit vacillating, a little bit uncertain with regard to the cautious use of opium. If I had a patient with pneumonia, suffering acute pain, and I did not give him enough opium to relieve that pain, I do not see that I do any good at all, and I have never seen any bad results from the use of opium in pneumonia. I know it used to be thought that opiates would stop expectoration. But, then, expectoration has largely gone out of fashion. I don't think much of that. I believe pneumonia is a self-limited disease, and if you conduct the case skillfully patients will get well invariably from seven to nine days. I think the very important point is to prevent excessively high temperature, during the first few days of the disease, from destroying the patient. In my experience I have never found anything as efficient to control that excessively high temperature as pretty decided doses of quinine. I would say very decided doses of quinine. It has succeeded with me.

In regard to the use of cold water—that has been referred to—I expect it is a good thing. I expect ice is a good thing. I know it has been landed very highly, and is, to-day, by a very great many of the ablest men in the world, yet I must confess that I am afraid of it I expect if I had charge of a public institution that I would try —you all know when you go into a family in private practice where they have been filled, as they now are in this country, with the idea of taking cold; everybody is afraid of taking

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cold; they want to stop all the key holes for fear the patient will take cold—I believe if a patient should die in my hands under such treatment they would be inclined to prosecute me for malpractice, and I confess I am a little afraid of it.

In regard to veratrum viride I believe when we have a bold, hard pulse, it is not necessary. I think the character of the pulse ought to indicate the use of the veratrum viride. Some one classes aconite and veratrum together. I believe if we have a very small pulse with dry surface and high temperature, there is nothing to call for aconite to dilate the surface capillaries to permit the blood to get out where it can be cooled, but if we have a full, bounding pulse I think there is nothing that calls for veratrum viride.

Dr. Chas. Angell, Sr., of Pittsburgh—Mr. President: I got in late and I did not hear the paper, but from the remarks of those that have spoken, there is one remedy or one article that has not been alluded to, and that is carbonate of ammonia. It is valuable almost from the very start, the solution, taken in 5, 10, 15, or even 20 grain doses, repeated often. The gentleman spoke of veratrum and quinine, opium and alcohol; all these articles have been spoken of, but not carbonate of ammonia, and I would like to hear an expression from the profession in regard to it. I am in the habit of using it in almost every case, and I have had a large experience in it for a number of years.

Dr. W. F. Sharer, of Delphi—Mr. President: I will say I was wonderfully pleased with the paper. It is one of those beautiful scientific papers, one of the kind we all love to read and hear in order to become enlightened on scientific points. The doctor has taken a great deal of care in the preparation of his paper, and has presented most of his points successfully. I think the suggestions that he makes in his treatment are good. The history of the disease is magnificent. The treatment may not suit us, for therapeutics is such a large field that it is impossible for us all to settle down on one particular plan of treatment of pneumonitis. The adoption of the peculiar treatment for a hospital, or for patients under peculiar circumstances, extraordinarily good circumstances, is altogether different from that which the patients would receive in the daily

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practice in a country district. I know, from experience, that the same treatment can not always be followed exactly, because the conditions are not the same, the surroundings can not be made the same. Having both a city and country practice we meet with these peculiarities, and we know we must meet them on all sides. I have never found any difficulty in the use of opium in sufficient quantities to control pain. I have never been markedly saving of it in any form. It is not so expensive that we need to be saving, and a patient suffering with sharp, acute pain will readily take opium and take large quantities of it.

One suggestion in the paper I thought was probably a little far-fetched, and that is in regard to the influence of cold or atmosphere upon pneumonitis. If pneumonia is not controlled by the changes of the weather, by the atmosphere, by cold and heat, then why have we so much of it in the cold season—in the winter season? During the summer season we have but very few isolated cases. Our epidemics are always in the cold season, and if cold has no influence on it, why should it not occur just as frequently in the warm season? I am not an advocate of the cold water and shower baths, simply because it is an impossibility to use it in all cases. I think the suggestion is a good one, if the surroundings were such that you could use those cold applications where the treatment could be constantly continued; but that is extraordinary treatment. Take the cases as we usually find them, scattered all over the country, we must prepare ourselves to meet them just as they are. We can not always make the surroundings, neither can we always prepare our patients for them.

In the matter of heart stimulants, the Doctor says alcohol. I am not wonderfully in favor of alcohol in pneumonitis. I believe that there are stimulants and that there are tonics in the materia medica that are much better. We know one thing about alcohol that is true, and that is that it hinders tissue metamorphosis; but while that is the case, the preparation of alcohol in these various forms may be brought out in such shapes that we do not bring to the patient the idea of taking alcohol. Now, I am a great believer in digitalis in pneumonia.

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I have had experience with it. With a weak, irritated patient I find I get as good resulst from it as a heart tonic as I ever got from alcohol in its pure form. I want to thank the Doctor for his paper; I really feel like congratulating him.

Dr. Strong, of Montgomery—Mr. President: I believe it is taught by some that in a case of pneumonia we suspend the patient between heaven and earth with opium. I will say that that is my chief agent in such cases. I give it not only as a relief for the pain in pneumonitis, but think it has curative properties. In the earlier stages I give largely of quinine. In the later stages alcohol, good, nourishing diet and hygienic surroundings. With young, robust people I have used the cold applications with great advantage. Where I have failed to relieve the pain with opium I have blistered with advantage. I would like to emphasize the opium.

Dr. Moffett, of Rushville—Mr. President: I used to think that I knew something about pneumonia, but as I have grown older I have come to an opposite conclusion. Now, we have had a paper here this morning that is according to our art in the modern conception, that is, as to the etiology and the changes that take place in the lungs by virtue of the processes that we used to call inflammation, and I believe it is the same thing yet, even according to the paper, because one of the terminations of inflammation is in pus, and according to the microscopic investigations of the essayist. He told us that there was often pus found in the peculiar effusion that fills the bronchials and sometimes the cells of the lungs. But the question arises in my mind, when it comes to treatment, when it comes to the real successful management of this disease, when it comes to be an aid to the one who is the sufferer from this malady, it rises in my mind how much progress has been made in the direction of prolonging life under these peculiar processes. It has well been said that this disease is self-limited. I believe that to be true, as all inflammations are as a rule.

Now, so far as we are concerned at this hour as physicians, we can only see in the lungs the blood-vessels—the blood circulating there; the ramifications of the pneumo-gastric nerve and other structures, the capillaries and cells, the bronchioles

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or minute divisions of those conduits that carry the air to reach the walls of the cell in which the changes take place which are necessary for the perpetuation or continuance of life. Now, what is the nature of this disease? I have said as others have said, it is self-limited. What is the mission of the physician in these cases? If the disease is self-limited, we should be warned at once that it is possible for us to do things we should not do, because we can not cut short the disease. The question of time arises in the mind of the practitioner, and he feels that he must avoid the dangers along the journey of this patient. Now, what are the dangers? The danger is that enough of the lung will become involved to prevent his having lung capacity sufficient to continue life, respiration is arrested. Another danger is, you may have inflammation of pleura and effusion; and thus, if your patient should recover temporarily, he is left in a condition in which he will linger and finally pass away. So that our part in the treatment is this: We should do those things that will effect most largely the arrest of the action that may lead to ulterior evil results. Now, in my earlier days, where we had a hard pulse, blood-letting was the thing, and there is nothing so powerful that we have at our command to prevent that engine pumping of the heart into the already submerged lung that is involved in the disease, and hence in a weakened condition. You do the same thing by your antimony, by your veratrum, or anything that holds up this pumping action, so that its power is not so strong as to overcome, by expansion, more and more of the lung surface until destruction is reached, at the point at which the individual can no longer live. The reason we bled in those days was to arrest that. Now, you may have inflammation in a feeble subject, one whom from the very onset you have got to hold up, so that we must have skillful practitioners, who can take into consideration the exact condition of our patient, and adopt those means and measures that are either sustaining or reducing, as may be required, in other words, preventing the ulterior result taking place at the end of seven or eight days, which will be disastrous to our patient. So we have to watch, as good mariners do, on either side, the

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rocks on one side and the reefs on the other. In the treatment of this disease we should have a conception of the dangers that lie about us, so that we may use those instrumentalities that are in our possession in order to prevent them, so far as we may; and in this we have the skill of the physician.

Now, here is a paper that is suited to us as practitioners. As practitioners we come here once a year from all parts of this State to interchange opinions concerning this question, and that is what it is for. We have been inclined to spend too much time, and we have had too much specialism in our Society. Now, as we have got an eminently practical paper before us, one that involves the modern conception of this disease in its etiology and causation. In many things said in that paper I do not agree, but I have not time to meet them. I believe we have inflammation that is caused by the vicissitude, and I let micrococci, and every other kind of cocci, go. Inflammation will be produced by vicissitude, sudden shocks to the system in a certain condition, either too cold or too hot, by virtue of the system, according to some accident that happened just at the time of the atmospheric vicissitude, and hence you have this kind of trouble developed, which we call pneumonia, or lung fever. So, I differ from the paper in that particular. It is a disease *per se*. It is a good deal like the question now existing, whether diphtheria chokes a patient to death is not exactly croup in the child. A great many discussions are going on about that. I believe croup is one thing, and it produces its own peculiar result, filling the pipe; and diphtheria has got another, in producing its peculiar pathological results, and the individual dies from secondary croup. In other words, from the occlusion of the wind pipe; and so it is with this disease.

Dr. Smith, of Brazil—Mr. President: I wish to add a few remarks concerning veratrum viride and its indication in the stage of disease in which it should be used, and the results to be expected. It should be used of course in the early stage of the disease, for doubtless the initial condition of lung tissue would be that of hyperemia, which, if continued with a strongly acting heart, would naturally enter a state of deeper

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and deeper engorgement with each successive day of the continuation of the disease. My experience with veratrum viride is that if it is administered at the start of the disease, it is truly abortive in its action. If we would use veratrum viride thoroughly at the starting point of the disease, we would have no use for heart tonics, because we would prevent the condition of evdœma of the lung occurring, which is generally of course caused by the heart failure. Regarding the Doctor's remark concerning the use of cold water, I have used it in but two cases in my private practice, and they were desperate cases, and I am happy to say that they recovered, but I will never use it again. Both cases were in the same family. It was entirely too unpopular, and it was professional suicide with the rest of the community. There is one method which I have never seen mentioned in any text-book, or discussed, although it is quite old—many old and good things are seemingly forgotten—it is a process called pneumispasia. It is the application of a pneumatic apparatus to both limbs, and then the air is exhausted from around the surface of the limbs producing a partial vacuum, and of course the blood is forced out the extremities. This is suitable of course only in the initial stage of the disease. By thus attracting the blood from the inflamed and congested and engorged part the circulation becomes normal at that point, and the disease is aborted. I know that to be so because I have demonstrated it, and I feel that the remarks are true concerning the abortive effects following the use of veratrum viride. I do really think if it was put into practice more in early stages of the disease, we would have more favorable reports. Of course in the later stages of the disease, when engorgement is complete, it would be worse than folly to use veratrum. I think, regarding the use of carbon ammonia, that we should restrict ourselves to the variety of pneumonitis that is being considered, which, of course, being lobar. I think pus cuts a very insignificant figure in lobar pneumonia.

Dr. Moffett, of Rushville—Mr. President: I want to congratulate the Doctor on his patient recovering in spite of the water and the doctor.

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Dr. McCoy, of Columbus—Mr. President: I am heartily in accord with the paper in regard to the cause of pneumonia; but there is one point the Doctor did not bring out. I am sorry he did not—at least I did not hear it; I was sitting back pretty well. While it is due to the pneumo-coccus, he failed to state that pneumo coccus has no power over a perfectly sound, healthy lung. So with other diseases produced by causes like pneumonia-coccus, erysipelas and others. The cause of the disease, bacillus, or whatever it may be, that enters the system must enter from abraded tissue somewhere. We have no diphtheria in sound throats. We have no pneumonia in perfectly sound lungs, except it be traumatic. Why do we have pneumonia chiefly in the winter time? Because we have the catarrhal processes, which have first predisposed and prepared the lung for the reception of the pneumonia coccus. Why do we have it after measles? For the same cause exactly. In the last three years I have had three cases of pneumonia in my own family, two boys and myself. The pneumonia of the two boys followed measles. Mine was after an attack of grip. Pneumonia is unknown before something of that sort. The point of contagion was not mentioned in the paper. It was hinted at, but where we see one, two, three, four or five cases of pneumonia in the same family we can account for it only in one way in my estimation, and that is that it is contagious, and that the element of contagion is there—the pneumonia coccus. Ordinary cold predisposes the lung or makes it favorable to the introduction of the germ. A man who coughs in the winter, or who coughs at any time, is more liable to have pneumonia than a man who does not, because his lung is in a favorable condition for the reception of the germs. The paper does not make any difference in the treatment of pneumonia in old people and in children. Many cases are among children, most of my worst cases were. I do not want to say anything about drugs except in regard to the use of anti-pyretics. Now, what is the cause of the high temperature? According to the Doctor's theory it is due to the chemical poison resulting from the introduction of the pneumonia coccus. If it is a chemical process why introduce another chemical process with antipyrine or anti-pyretics? Why not let the chemical process go

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on until it develops a temperature in which the germ producing that disease can not live? For that reason I use very little anti-pyretic medicine. I let the ship sail along if it is out in mid ocean and don't try to lift it out.

I am very much in favor of the cold water treatment in preference to anti-pyretics. In reference to the objection that you are going to have with patients and patrons, who should educate your patients and patrons if not the physician? In regard to the temperature of the room—something was said about that—I don't believe in the thermometer very much; that is, as to the temperature in the room. I am, so far as the temperature of the patient is concerned, but not the temperature of the room. When I had pneumonia, we had a thermometer in the room. I was chilly; I could not get the room warm enough for me. My wife says: "Why it's eighty degrees." I said: "Take the thermometer out and fire up until I feel comfortable." When a patient says the room feels chilly, it is a good indication to me that the patient is chilly. The patient is a good deal more susceptible to cold than those in health, and the power of resistance is less, and it is not always the same; it is not the same to-day as it was yesterday, and it may not be the same to-morrow that it is to-day. I use cold towels wrapped around the chest, and put blankets around on the outside. I never use cold in a case of collapse; but with a bounding pulse, instead of giving veratrum, I reduce the temperature by cold; there is a reaction following, which you do not get after veratrum.

Dr. Moffett, of Rushville—Mr. President: I just want to say that this pneumonia coccus is a great coward. According to the last account, whenever anything else attacks a lung and gets it down, he is ready and bounces in.

Dr. J. H. Ball, of Lebanon—Mr. President: I must thank the Society for the kind criticism that has greeted my paper, and the kind suggestions that have been made. I assure you I have profited by them. I will say that I could not, in the time allotted for the paper, reach out to each particular case, but I must touch at each I must go from one extreme to another, you might say, to get in the scope. Each case, in fact, should be treated upon the particular conditions present.

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Now, as to the use of ice, I think it has been well said that you can not always use it; and if moisture and heat will be sufficient, I would use heat in preference to ice. As to the question of opium in the first stage, as I said, I should be very careful how long I continued that, for fear I might obtund the respiratory center sufficiently to produce serious injury. If I had a temperature of 106°, I should most certainly give ascentellid, or something to reduce that temperature, and I think opium would relieve the pain. Chloride of ammonia I suggested. I would use it in connection with alcohol. The bloodletting, in some cases, I consider a most excellent treatment for special cases. The gentleman said he could not see why we would give anti-pyretics to reduce the temperature when the rise in the temperature is caused by chemical changes. Why not let it go on? he asks. I am afraid, if you let some of them go on without anti-pyretics, the patient would die while the chemical changes were taking place. You must reduce that temperature in some way. There have been a great many valuable suggestions made, and I would meet some of the points raised more completely if I had time. I thank you again for the attention you have given my paper, and for the very fair discussion of it.

[In justice to Dr. Ball's excellent paper and the wide discussion it incited, it should be said that Dr. Ball's paper was lost and he was only able to furnish the above brief abstract for publication.—EDITOR PROCEEDINGS.]

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COUGHS.

BY LEWIS C. CLINE, M. D., OF INDIANAPOLIS.

Mr. President and Gentlemen of the Society:

I call your attention, briefly, to the subject of coughs, first, because of their prevalence at this time of year, and, second, because of the imperic manner in which they are regarded and treated by some of the profession.

Cough is an expulsive effort to remove some apparent or irritating substance from the air passages. An irritation produced on any of the peripheral branches of the pneumogastric nerve, or those connected with it, will cause an impulse to be transmitted through the afferent fibres to the respiratory center in the medulla, where they are translated into others and conducted through the afferent fibres of the cerebral and spinal nerves to the muscles of respiration, liberating their force, thus producing cough.

The act of coughing produces congestion of the venous circulation. The current of blood is not only retarded in the large veins, but may, in severe paroxysms of coughing, be reversed and the pressure brought to a high degree. In the pelvis the inferior hemorrhoidal veins and those of the bladder and uterus become so turgid that rupture may occur, causing slight hemorrhage during the paroxysm of coughing. In protracted cases the continued obstruction of the venous circulation may lead to derangement and disease of the liver, stomach and kidneys, culminating in dropsy. In the lungs the venous congestion may result in permanent dilitation of the capillaries, rupture and emphysema, with all its consequences.

Many terms are used to designate the different kinds of cough. The following are the only ones that need claim our

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special attention, viz.: reflex or spasmodic, irritative, sympathetic, hard and muffled. A reflex cough is one that may be due to an irritation in other organs distant from the respiratory apparatus. With this variety we class coughs that come from the stomach, rectum, uterine, ovarian and ear disturbances. Coughs from nasal obstruction come under this head, although it is a part of the respiratory tract. Spasmodic is a term applied to cough when it occurs in paroxysms of great violence, of which whooping cough and foreign bodies in the trachea are typical examples. Mediastinal tumors, as aneurism and enlarged bronchial glands may produce this variety. The cough of acute bronchitis is spasmodic in character. It is observed in phthisis. In this it is probably due to the intense hyperæmia and irritation of the pharynx, a result of repeated attacks of cough and collections of viscid mucous, which is frequently terminated in vomiting. In children this is a diagnostic sign of whooping cough.

Rupture of the superficial capillaries may occur and slight hemorrhages take place from the naso-pharyngeal or laryngeal mucous membranes, especially when they are weakened by catarrh. In ordinary catarrhal conditions of the upper portion of the larynx cough is not a prominent symptom and only becomes so when it involves the lower part of the larynx and trachæ.

Cough is much greater and more violent when the large bronchial tubes are effected than when the small bronchi are involved. The pulmonary parenchyma are still less sensitive, or, in other words, the cough of bronchitis is much greater than when the deeper tissues are involved, as in pneumonia. In the early stagas of phthisis, when the inflammation involves the parenchyma, the cough is not so severe as later when the larger tubes are involved. This fact is very important from a clinical and therapeutical standpoint.

Irritative cough is one that is frequently repeated without any expectoration and is the typical cough of phthisis pulmonalis in its early stages. This form is observed in some cases of obstruction of the nose and in cases of elongated uvula, enlarged lingual tonsils and adenoid tissue about the pharynx.

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Coughs may be purely nervous as is sometimes observed in neurotic subjects. Dr. Solis Cohen, in his work, relates a case of an epidemic of nervous cough that occurred in a school of young ladies, in which it became necessary to dismiss the school in order to break it up.

A hard cough is a violent one with little or no expectoration. The terms metallic, brassy and ringing, are applied to this variety. It is observed in the dry stages of acute and chronic bronchitis, and in consumption, when the secretions are arrested.

A depressed cough is one which causes pain, and the patient makes a voluntary effort to suppress it, or modify its intensity. A typical example of which is seen in pleurisy. It is also met in pleurodynia associated with bronchitis.

A muffled cough is an exaggeration of a hoarse cough, and bears the same relation to the latter that hoarseness does to aphonia. It is sometimes designated as a "grave-yard cough." It points to a diseased condition of the larynx in which the cords can no longer be thrown into sonorous vibrations. It is the typical cough of membranous croup and laryngeal diphtheria—laryngeal phthisis and paralysis of the muscles of phonation.

To facilitate the diagnosis, prognosis and treatment, coughs may be divided into two classes, curable and incurable. On the accurate diagnosis of each individual case depends the successful or non-successful treatment. Can you cure my case, Doctor? is the all-important question so often asked. The answer to this question differs materially in different cases, and must depend on the careful analysis of many points. The principal ones are as follows:

1. The age and surroundings of the patient.
2. The hereditary or acquired diathesis.
3. The clinical group to which the case belongs.
4. The susceptibility to naso-pulmonary catarrh and its character.
5. The means and opportunities of the patient to carry out the plan of treatment.

I have cured very distressing coughs by removing inspisated wax from one or both ears; by removing tumors from the

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naso-pharynx; by removing a spur from the septum and relieving the pressure; by removing adenoid tissue about the pharynx; by clipping an elongated uvula; by removing the lingual tonsils, foreign bodies, benign tumors and growths in and about the larynx.

In self-limited diseases accompanied with cough, as measles and pertuses, the cough should be watched and modified to alleviate the suffering until the disease has spent its force. This may be accomplished by the bromides, chloral, belladonna, etc., in doses sufficient to produce the desired effect.

The respiratory organs and the nervous system may suffer great damage by violent cough incident to aneurism and other tumors that press upon the pneumogastric nerves. These are best relieved by the iodides in large doses. Opium may be used until the iodides have time to act. The cough of phthisis often subjects the patient to great fatigue and impairment of diges tion on account of its violence. The best results are obtained by giving a sedative at night sufficient to secure immunity from cough, and rest, and dispense with all cough mixtures during the day, except in extreme cases. One of the best remedies is a dram of the syrup of wild cherry with $\frac{1}{16}$ to $\frac{1}{8}$ gr. of morphia at bed time, to be repeated if necessary. Morphia given in this way will seldom produce nausea.

Many of these cases suffer from nasal catarrh and a spray of Sieler's Antiseptic Wash, or some like substance will prove a great blessing and comfort to the patient. A gargle of Listerine with a few drops of carbolic acid, will often give more relief than a cough mixture.

In many cases of phthisis the strength is exhausted and the digestion is impaired by excessive coughing. It is in these extreme cases the opiates do the most good. Our aim should be to mitigate the cough and not arrest it. Nauseating syrup mixtures should be avoided. In laryngeal phthisis and chronic bronchitis, I have found that inhalations of a spray from a hand atomizer of a light oil, say albolene, two ounces, menthol gr. 5 to 10, tr. iodine gtt. 5 to 10, to which oleate of morphia or cocaine may be added, will prove very grateful and beneficial in many cases. In the later stages when opiates increase the sweating, belladonna in some form may be added.

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A cup of hot coffee or a good drink of rock and rye at bedtime will often secure several hours of good sleep. In the hard, dry cough of acute bronchitis we would use such remedies as will excite the mucous secretions. Inhalation of steam vapors and the administration of iodide of potassium and soda will give the best results. Camphor, henbane and valerian are valuable in nervous or sympathetic coughs.

A dry, hacking cough is often dependent on naso-pharyngeal catarrh of gouty or lithæmic origin, and no amount of treatment will cure until the cause is removed. Coughs should be studied as symptoms, the result of reflex irritation. Our first duty is to search for the source of the irritation and remove or modify it to the best advantage or comfort to the patient. The matter of clothing and bathing is of great importance in caring for coughs.

I could sight many cases to illustrate the necessity of a careful study of coughs before prescribing, but I will desist, hoping that I have said enough to introduce the subject for discussion.

42 East Ohio Street.

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DISCUSSIONS.

DISCUSSION ON DR. PAGE'S PAPER, ENTITLED "SURGICAL TREATMENT FOR THE RELIEF OF NASAL CATARRH."

(See page 27 for paper.)

Dr. Cline, of Indianapolis—Mr. President: The paper is a very good one and covers the ground most admirably, as far as it goes, and of course the views of the treatment are good; but we have different methods of treating the different parts of the nose. I wish to speak for a moment on the use of cautery on the turbinates. The essayist in his paper told about making a linear incision of the turbinate; the entire length, as I understood from the paper, in those cases of hyperplastic or hypertorpic conditions. Now there is quite a difference between hyperplastic and hypertorpic. Hyperplastic is simply where there is engorgement and engorged condition, the tissues are filled with serum and blood, and hypertorpic is where the tissues are really enlarged and thickened, and permanently so; and the diagnostic point between the two is simply the use of a little cocaine. I think the essayist spoke of that. It is a certain and evident method of making the diagnosis. Many noses, when we look into them, look very much swollen and filled up, and look as if they would require an operation to relieve them; but a small amount of cocaine on a little cotton on a probe will disperse all the swelling, and the nose will look clear and open. In these cases that should always be done first before there is any operation, and if the tissues or the swelling is relieved then no operation, I think, should be performed whatever, not even with cautery. I have found often in these cases a simple touch of nitrate of silver, or some powerful stimulant, on a piece of cotton wrapped on a very small probe dipped in a forty or sixty per cent. solution of nitrate of silver, just get enough to pass it along on the edge

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of the turbinate, and that will, in many of these cases, be sufficient to disperse this swelling. And my method is now largely to puncture the turbinate; instead of making an internal lineal incision all along the turbinate body I but puncture in two or three places; then use an antiseptic treatment or wash. Things of that character will usually suffice to relieve them. Now, one word in regard to the drill. The essayist spoke in regard to the drill being sufficient to relieve this in preference to the saw. The saw is in my judgment in many cases better than the drill. I used to use a drill a great deal more than I do now, from the fact that a drill, being round, makes an irregular surface. It is nearly impossible to drill through the turbinate body, or spur, or septum, without leaving a roughened edge, from the fact that the drill is round. My experience is the smoother we can leave that cut surface the better, for then there is nothing to catch the secretions and hold them, and they are very rapidly dried up by the air passing over them. The smoother cut we make the better. I think it is always best to make a smooth cut, taking the tissue, mucous membrane and all. I have heard it taught that the membrane should be dissected off, and then the bony cartilaginous portion relieved, leaving the mucous membrane to fall back upon its original place and grow back. That is a mistake. I have never seen that accomplished. I have tried it a number of times. I have abandoned that idea entirely, and make a smooth cut. I think that the paper has covered the ground very nicely, and is a very practical paper. I want to state further that in my judgment this subject requires a great deal, and should have a great deal, more attention paid to it than it receives by the general practitioner. There is an immense amount of suffering throughout the country from these troubles that could be relieved by a little attention and study by very simple means.

Dr. J. R. Wiest, of Richmond—Mr. President: I rise to indorse the last statement of Dr. Cline, that a very great many of these troubles can be relieved by the general practitioner by very simple means. I suppose I would come under the head of general practitioner. My observation leads me to the conclusion that the greatest relief that comes to these patients is

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through the general practitioner. My interest was excited very greatly a few years ago, when one of my friends stated to me the very wonderful things accomplished by specialists in this direction. He said to me that there was no case of asthma that he was not able to cure by an operation upon the womb. I felt that a great deal could be accomplished if that were true. Since then I have known cases to be operated upon by those gentlemen who neither had their asthma cured, nor the trouble for which they applied to the specialist. I find that even operations on the nose will not cure headache, the result of uremia, when patients have Bright's disease; and I find that specialists don't even remove them when they remove the turbinate bones. I want to indorse the statement made by my friend Dr. Whittaker, of Cincinnati, that nearly all the cases that are treated by specialists ultimately return to the general practitioner for the treatment of the parts.

Now, another word about a danger that does come to some of these patients. I have now under my care two patients who have been operated upon—not in this city, I am glad to say, but in a much larger one—who have been led to the formation of the cocaine habit by the use of the spray, and its application made in the nose for operations of this kind; and the cases have given me fully as much trouble as any case of morphia habit that I have ever been called upon to treat.

Dr. L. F. Page, of Indianapolis—Mr. President: In reply to the gentleman who spoke of the trephine drill, Dr. Cline, I want to say that there are very few patients that will submit to a long and painful operation with the saw, when they can have it done in five minutes with the trephine drill. His objection that the trephine drill does not make a smooth surface, I think it is not well taken. Dr. Bosworth, who was the greatest advocate of the saw, I believe, has ceased to use it, and adopted the Curtis trephine drill. I saw him operate in New York city on several of these cases. They use the trephine in the Eye and Ear Hospital, and it certainly saves a great deal of pain and time. One objection to the saw is, that you can not guard the end of it exactly where it touches. The point always touches the turbinate bones unless you have the point guarded in some way, and it produces irritation there, and a

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great deal of pain. I can not see why there should be any objection to touching an enlarged turbinate with electro cantery to prevent hyperplastic formation before it begins. These cases of sub acute rhinitis that come to us with the nose completely obstructed from engorgement can be relieved entirely by cocaine and spray. They will be relieved, probably, for two or three weeks; but, as soon as they are exposed to a draft, they will have the same condition to contend with, and the patients come back, and you go through the same operation over and over again, when, by a very slight linear incision in the turbinate, cautery relieves the patient almost perfectly, and prevents hyperplastic formation.

DISCUSSION ON DR. PANTZER'S PAPER, ENTITLED "LAMINECTOMY."

(See page 35 for paper.)

Dr. Edwin Walker, of Evansville—Mr. President: I was very much interested in the paper. It certainly teaches us that in all these injuries of the nerve centers we should inquire whether there is not something to be relieved. There is only one thing in the paper I would rather the doctor had omitted. I was in hopes he would get through without saying anything about reflex disturbances. If there is anything that covers a multitude of sins it is our theory of reflex disturbances. While I would not pretend to explain accurately the pathological reason in the case referred to, we do not want to fall back on the reflex theory to explain how a concussion of the spinal cord might have an effect on the nerve-centers. I do not believe such a thing as reflex epilepsy exists. The pressure in that instance affected the cord probably by an ascending myeletis, or probably degeneration, as we know lesions low down in the cord cause ascending degeneration. But I want to insist on this point, that when we say a thing is due to reflex trouble we simply say we don't know where the trouble is. We use the term "reflexes" too loosely. It simply means some condition we can not explain. I was reading just a short time ago a work of Brown-Sequard's—lectures delivered in London along in the fifties—in which he described reflex paralysis from

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disease of the bladder, reflex paralysis from all sorts of injuries, from diseases of the stomach and bowels, in fact, nearly everything that we know now to be due to entirely different troubles. Nowadays we know how far off from the true explanation he was, and I rise at this time to protest against the use of the term "reflex neurosis," the reflex theory, to explain diseases.

Dr. Moffett, of Rush Co.—Mr. President: I want to call up what has happened in this Society in connection with the remarks of the essayist on this occasion. I wish to make a statement or two derived from observation and practice. Many times we have children born of whose condition we can give no better explanation, perhaps, than to say that they are born diseased with what ordinarily has been heretofore, and is now, perhaps, regarded as organic defects. In other words, the child was born before it was sufficiently formed or developed to maintain an outer existence, and the result would be that in a day or two after such child was born we would have conditions of the spine, which would be manifested by extreme soreness and pain, with a tendency to stupor, coma, and finally convulsions; and in actual practice I have seen a number of such persons restored to perfect health. I have in my mind's eye a little boy that is now about three years old, whose back I had to keep sore from the end of the spine to the nape of the neck; I kept it sore for six long weeks. I believe that by counter irritation I have prolonged the life of that child and he is well now. And I have made up my mind there are a great many phenomena connected with the nervous system that we do not understand, but by a little heroism and the use of that barbarism, in plain speaking, of making a sore externally greater than the internal one, you will have the pleasure of seeing the life of your patient prolonged; otherwise death will claim its victim. This case that is presented here teaches us an additional lesson, provided we improve it.

Dr. Guido Bell, of Indianapolis—Mr. President: My name has been mentioned in the paper and that is my excuse for addressing this Society. I was present and saw the cut or opening and the removal of the bone. That opening was fully as long as my hand and scarcely as wide as my finger, but fully

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as deep as my index finger. In this long, narrow and deep opening, all this cutting and clipping around the spinal cord had to be done, and I confess this operation made a deeper impression on me than the first laparotomy I saw thirty years ago. It was a remarkable operation. It ranks as high as any operation ever performed in this city, and I have in mind the first operation for gall-stones by Dr. Bobbs and that remarkable case of extra uterine pregnancy of Dr. Eastman's where the child was saved, and all the great work done in laparotomy. With all these remarkable cases, this case stands equally high; and I say that there was more skill and science in this operation than in many operations on the brain of man.

Dr. J. F. Hibberd, of Richmond—Mr. President: I wish to make a remark, not exactly on the paper, but on my friend Dr. Walker's comments on reflex action. Are we to be robbed of such an admirable resort in passing through our professional difficulties? And have no such thing as reflexes? For instance, there was a gentleman under my professional care last year who was taken suddenly, one evening, with agonizing pain in the abdomen—the lower part of the right abdomen. It went from extremely bad to outrageously worse, and in less than two hours he was vomiting until he was likely to vomit away his life. The vomiting was controlled admirably by hypodermatic injections of morphia, but when the influence of that would wear off the vomiting would return and it kept on perhaps for two and a half days or more, and then there came—I don't know but what at this time there was nothing but excessive pain to indicate what was wrong, and I regret to say that didn't indicate anything to me but pain, and I did not know what was the matter—and then there came first a large discharge of mingled blood and pus from the bladder, and after the continuance of that for two or three days the whole thing was very clear that the gentleman had had an abcess in his right kidney. Now, if he did not vomit from reflex action what did he vomit from?

Dr. Walker, of Evansville—Mr. President: If I may be allowed to answer Dr. Hibberd, what I insist upon is that we do not confuse reflex symptoms with reflex diseases. There are some reflex diseases, but that these reflex symptoms produce

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definite organic or even systematic organic disease of the nervous system I do not believe.

Dr. Pantzer—Mr. President: I wish to thank the Society for the attention it has given to the paper, necessarily tedious by reason of its detail, but I feel that if I should make an apology it is that the details have not been ampler. I am, perhaps, excusable for not making it ampler owing to the shortness of the time allotted each paper. The subject is not dealt with more amply for that reason. The first speaker referred to the pivotal necessity, the point of greatest necessity in connection with this matter. It is that we know what the pathology is. The doctor refers to ascending myeletis. I think that is not exactly it. After four or five days ascending myeletis would have required a much longer time for improvement. I wish to state to Dr. Moffett that counter irritation was tried here long ago, and tried in vain.

Dr. Moffett—Mr. President: I did not wish to intimate that that would have cured this case. I was talking of the curious condition of the nervous system, either from traumatism or disease, with which we are not acquainted.

Dr. Pantzer—Mr. President: I wish to thank Dr. Bell for referring the case to me, and I feel it is owing more to him than to my own endeavors perhaps that the case has wound up so satisfactorily. Dr. Bell saw the case during four and a half years before the operation, and referred the case from one surgeon to another asking for an operation, and once to me several years before, and none of us chose to regard the case as an operative one. His diagnostic correctness, his diagnostic perfection in this matter has been proven by the result, and after all, diagnosis is the matter of primary importance.

DISCUSSION ON DR. WILLIENS' PAPER, ENTITLED "CHOLECYSTOTOMY."

(See page 59 for paper.)

Dr Jos. Eastman, Indianapolis—Mr. President: I am particularly interested in this paper for several reasons. Complications of all sorts with pregnancy are not unusual, but I have never noticed a case of that kind in my work. Another point:

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The Doctor refers to finding several stones in the common duct and several in the cystic duct. In something over twenty cholecystotomies, I have never yet found a stone in the common duct. It may be that I lacked knowledge of anatomy. It may be that my work has been different, but I have frequently found the common duct obstructed by pressure of the stone in the cystic duct, making a sharp deflection of the common duct, making an enlargement and pressing upon it, and in that way obstructing it. If stones were in the common duct, I can not conceive of their extraction through the cystic duct unless the entire duct was enormously dilated. This case I am not disposed to dispute at all. I believe the Doctor is correct, but I do not understand why I have never been able to find the gall stone in the common duct. They surely form in the gall bladder and in the cystic duct. I have frequently found there was no gall passing in the common duct, but the obstruction was due to the cystic duct, the extended gall bladder, or some pericystic inflammation had closed the duct.

Dr. L. H. Dunning, of Indianapolis—Mr. President: This is certainly an interesting subject to all those engaged in abdominal surgery, and should be to all engaged in general practice. The description of the case is a most admirable one. It has been my fortune in one case to find the stone in the common duct and was able to remove it by working it back into the cystic duct and thence out through the gall bladder. I wish to call attention particularly to the resources that have been added to our means of dealing with the class of cases in which the stone is in the common duct and so hard it can not be removed without destroying the integrity of the common duct, and that is in using the buttons of metal which have been introduced in the last year and a half. It has been the custom with some of us for a number of years where we have found a hard stone thoroughly impacted in the common duct to leave it alone for the reason that more than fifty per cent. of such cases have died from the result of the operation. The difficulties in the way of getting the stone out are very great. The crushing of the stone by forceps with a rubber tube drawn over the forceps has helped in some instances, and in some instances I have used the needle for crushing the stone or picking it to pieces and removing the fragments.

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Murphy has reported successful cases of operation through the use of his buttons, and it seems very feasible. Dr. Murphy has reported these cases honestly, and we can have recourse to this method in the future. The lumen of his button is so large that the ordinary sized stone will pass through—a good sized stone—and one of these cases he represents. In two instances he reports simply opening the gall bladder without removing the stone at all, inserting one end of the button into the gall bladder and passing it into the jejunum, bringing them together quickly, and in three or four days the stone was discharged through that opening into the bowels. I consider that this is an added resource, and I simply rose to mention it.

Dr. H. O. Pantzer, of Indianapolis—Mr. President: The subject has been admirably presented. It is one that has not received due attention by previous essayists. The Doctor makes a strong plea for operation in these cases. The subject of cholecystotomy naturally links itself to cholelithiasis. The latter are far more numerous than ordinarily accepted. Those who search the abdomen will be surprised to find so often the gall bladder enlarged by various causes, that evidently give rise to troubles clearly connected with that organ. It is especially so in our climate here in Indianapolis and cholelithiasis, or enlargement of the gall bladder, is a matter of great frequency. The surgical resources are comparatively safe. We would scarcely expect to lose a case from operation on the gall bladder any more than from a diseased ovary. The case reported calls to mind a very interesting case that I had under observation. The case originally developed, as was diagnosed, a parietal abscess. There was a great deal of pus and mucous discharged and that created some surprise. The reason was not thoroughly elucidated however, until four or five months afterwards, when through the fistulous opening that remained some five or six small stones were removed. I saw the case a year or two afterwards when the lady was in hard labor with a gall stone. The gall stone was easily removed by a small incision on the surface and putting my finger in the organ I found that it contracted down on my finger more powerfully than a womb ever did. The resources of nature are nicely exemplified in this case. The organ was at least a quarter or three-eights of an inch thick. Dr. Bell saw the case with me.

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DISCUSSION ON DR. DUNNING'S PAPER, ENTITLED "APPENDICITIS."

(See page 63 for paper.)

Dr. Link, of Petersburg—Mr. President: I would like to ask Dr. Dunning and the profession what the experience has been in the expression of the superficial distribution of nerve pain that may appear from branches of the nerve in reference to the lumbar plexus. I am in accord with Dr. Morris, of New York, who is very radical in favor of operating in those cases. Now, in the cases that I have seen of impaction, and all the cases that have come under my observation, the first symptom is pain in those parts. My practice has been the early administration of opium. I have read a paper of Dr. Morris in which he says he has discarded entirelp the use of opium in this class of cases in his sanitarium. Now, opium covers up that one symptom. If that symptom serves the profession as well as it does me it is a very important one, and I extremely doubt whether those parts can become diseased without getting that kind of an expression upon the nerves of the branches of the lumbar plexus.

Dr. Jos. Eastman—Mr. President: I have been much interested in this paper; I was also interested in its presentation before our county society. I would make the same objection to the paper here that I made there. It takes up the subject of diagnosis and prognosis and treatment, and then enters into a discussion that covers the entire ground, leaving little or nothing to be said. The question seems to me to be one of great importance. Much of the literature of the day is teeming with operations for acute and chronic peritonitis. As the essayist has said, a foreign body, even a shot, may remain for a considerable time in the vermiform appendix, and no evil results come therefrom. The whole question resolves itself into the treatment of such cases, to the treatment of acute and chronic peritonitis, whether we shall operate in the acute stage or in the sub-acute, or when the products of inflammation have become so far localized and described that we know what we are going for, where we are going to find it, and what we are going to do with it when we have reached it. Dr. Link, in referring to the diagnostic point as a pain in the lumbar nerve, I

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would say that I have not noticed any pain in that locality; but he brings up another point, which enables me to say that I am much opposed to casting aside the treatment of Alonzo Clark in acute appendicitis, or acute peritonitis, they being one and the same thing. According to the investigation of some, about 33 per cent. of the women, as shown by his post mortem examinations, have inflammation of the fallopian tubes and ovaries. Surely only a small per cent. of them require any operating interference. I believe the same to be true with reference to appendicitis. I believe that only a small number of the cases require operating interference; and I am gratified that the Doctor presented both sides of the case—cases recovering without operation as well as those that recovered with operation. It seems to me that the pendulum of science has swung too far in these matters. Our literature is teeming with saline purgation for everything so far as abdominal difficulties are concerned. We have forgotten the treatment of Alonzo Clark and Frank Hamilton. They insist that irritation is the underlying principle of inflammation. What could be better to prevent its becoming general, as in cases of peritonitis, than a dose of opium. Saline purgation would be the right thing after acute inflammation and irritation had been allayed. In many of these cases an opiate will assist us in moving the bowels, having allayed the irritation in the circular muscular fiber of the bowels. It is the adaptation of the remedy to the stage of the disease here, as in medical practice, that marks out success. Operative interference later may be the thing; earlier it may be followed by death. Dr. Link refers to a gentleman's recent statement in New York as to tapers or candles lighted and put upon the tombstones of all the people who have died of appendicitis. Let me tell you, my opinion is that if we follow the indiscriminate teachings of the medical journals and cut into every abdomen where there is inflammation, we will have ten tombstones illuminated where we have one if we treat these cases on the old plan of opium and hot applications and good, old-fashioned common sense. If I had not had something to do in this line of work, perhaps I, too, would be in favor of more aggressive procedure; but, as it is, I believe in watching, as the Doctor indicates, the

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patient carefully—watch this inflammatory condition as you would the subtlest enemy. Ever and anon a case will go on and die, and you will regret that you did not operate. Ever and anon you will operate and the patient will die, and you will regret that you did not wait and let the patient die of the disease and not the doctor. I have known cases where it required the consummate wisdom of the surgeon and doctor combined, and in spite of all we may err. It is easy to say that if the abdomen is opened, life will always be saved. I read the statement of a gentleman the other day that, if the doctors over the country would only treat hernia in a certain way, all the cases of hernia would recover. Every gentleman in this room knows that that is not true. If they don't, I do. And so with this idea that we are to open the abdominal cavity with impunity and success is misleading, and is costing many lives. I insist that, while a few specially prepared, with extreme antiseptic precautions, and with much anxiety and apprehension lest death may follow, may open the abdomen, it is not to be undertaken lightly and generally by the profession at large.

Dr. Edwin Walker—Mr President: I am very much pleased with this paper and the discussion, and I think Dr. Eastman has learned by experience, as I have, and become more cautious about opening the abdomen. There is one little point I want to call attention to and that is what I consider one of the earlier indications for the operation. In the class of cases that are rapidly fatal there is something quite distinctive from the start, and there is one thing in describing those conditions about which I must differ from the essayist. He speaks of the milder cases as being characterized by the absence of a number of symptoms, and among them, high temperature. I think the description of those cases is given probably better in an article by Dr. Barrows in the Medical Record, of April, of last year, and it accorded exactly with what I had seen in cases that I operated upon and proved fatal, and the symptoms are these: The first thing is the severe pain, sometimes located in the right side and sometimes not located in any particular part of the abdomen, and with that the symptoms of shock. Tho patients usually have cold ears and nose and cold extremi-

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ties. They have a pulse and respiration out of proportion to the temperature. Those cases that I have seen—I saw a number before I operated much—in all those severe cases that proved fatal the temperature, in every instance, was low in proportion to the pulse and respiration; and when I find a high temperature I feel more encouraged than if I had a low one. We know in the last forms of peritonitis, a rapid pulse with low temperature are most serious symptoms. These are symptoms that I consider will indicate immediate operation. I operated just a short time ago on such a case. When I reached the appendix I found no adhesions whatever, but a perforation that I could put my lead-pencil in, and secretions from the appendix, a mixture of pus, was oozing out of the appendix. Now, in that case, I believe a delay of only two hours would have been fatal. Just a few days afterward I was called to see another patient. The physician in charge, as well as the family themselves, were disappointed because I would not operate. In that case the acute symptoms subsided and the temperature had almost reached normal—very comfortable, indeed.

I did not sympathize with the expression of Dr. Morris in his paper that Dr. Link refers to. I have the pleasure of being acquainted with Dr. Morris and appreciate him highly as a gentleman of ability, but in this case I think he goes too far. I asked him last winter what he considered the indication for the operation for appendicitis and he said the indication was appendicitis, that he would operate in all cases. I think he is just as far wrong in that as those who say operate in no case.

Dr. Hibberd, of Richmond—Mr. President: I would like to say a word, and that is this: The value of the paper to me, as a general practitioner and not a surgeon, is that it points out with some distinctness those cases in which we ought to call in the surgeon for an operation, and, upon the other hand, those cases in which we can hope to get through successfully by the ordinary lines of medication.

Now I know nothing about this Morris statement here, that where you have appendicitis cut open the abdomen and see what is in there. That dogma was laid down here in this Society about three years ago. The statement was very dis-

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tinctly made, I think by a gentlemen who read a paper, that whenever you knew you had appendicitis, cut open the abdomen and take out the offending member and cast it away. It rather astonished me. I think I asked the distinguished laparotomists here whether that was really the doctrine of that class of specialists, and was advised that it was a little too strong. Still I think there has been some softening down of the frequency with which these operations are demanded by the condition of the patient, and the distinguished laparotomist to whom I appealed for a little information on that occasion, happens to be the same distinguished laparotomist who has just read the paper on this point, and I think he is much clearer now that we may wait on favorable circumstances through the second, third or fourth days, if necessary, and still have the hope of saving the patient. It has happened to me in the last four or five years to have a number of these cases, two or three of them at the time the paper was read three years ago, and as they all got well the query in my mind was, By what streak of good Providence my patients had gone through without any definite knowledge on my part of what was the very best thing to do? I prescribed general principles. I found a great big pain there with soreness, and the thing was to get at and stop the pain and remove the tenderness. It was always a hunt in the dark. You act a little on the very comprehensive rule of conduct that is said to govern at Donnybrook Fairs—you have a shillela and whenever you see a head hit it. Do what is the proper thing at the time. I think I can go back forty-five years to a time when a young German died with a case of peritonitis then—it has changed it's name a little now—who might have been saved if there had been a timely operation. I think in the last five or six years there has not been one that could have been benefited by an operation at the time. In one case particularly I think there had been three attacks. On the fourth I made the request that some laparotomist would come in and help me out. But the point I find in the paper that is comforting to me is that it points out with some distinctiveness the condition of our patients which we general practitioners may with very fair hopefulness undertake to treat, and enables us to decide

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what cases we can carry through with our own resources and what cases we must call in the surgeon to aid us.

Dr. Smythe, of Greencastle—Mr. President: I am very much obliged to the doctor for his paper. I think this is a subject that does not receive the attention its importance demands. I am a general practitioner, but I sometimes practice surgery. Over a large extent of territory, I am called frequently in consultation with doctors that get into trouble, and I want to say to you now that I believe that appendicitis neglected is the cause of more deaths in the country than any other one disease, except tubercular consumption. I have seen four cases die with this disease since the first of January, any of which could have been saved by a timely operation, which was verified by post mortems. A patient is sometimes lulled into a false security under the treatment of opium and other measures, and led to believe that he has got well. The fact is, a patient who once has appendicitis, even of a catarrhal variety, never recovers without an operation, and is slumbering on a volcano which is liable to burst forth at any time and destroy him within twenty-four or forty-eight hours. I was called to see a gentleman sixty-eight years old, in January, who had had his first attack thirteen years previously. He had had subsequent attacks from time to time, varying from six weeks to five years, and when I saw him he had a purulent collection in the region of the appendix. It could be marked out by manipulation. I begged him to let me relieve him. He said he had recovered from several attacks and had been told by his physician that he would get over this one and declined to have the operation performed. He died in thirty hours, or two days, afterward, and a post mortem demonstrated that he might have been relieved. I saw a boy nine years old die with his second attack in January. I was called in February to see a boy thirteen years old who had already a purulent collection formed. I begged and plead for permission to open it but was, refused. This patient recovered, partially by the pus burrowing up, following the adhesions and opening up by its own force an outlet, and the boy is going around. I have a patient under my charge now who has had four or five attacks of catarrhal appendicitis within the last three weeks, and one attack

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succeeding almost immediately after having been lulled into a false sense of security by the administration of opium and the application of hot fomentations, etc. There is tenderness right over point. Although there is no fever there is tenderness which can be found with the finger, and although the case may live for twenty years and then be destroyed there is always, so far as my observation is concerned, a tenderness immediately under that point to deep pressure. Sometimes the adhesions are slight, and there are no purulent collections, but the patient is in imminent danger all the time.

Now, I want to disagree with some of the laparotomists. I have opened the abdominal cavity sometimes myself. There is less danger in opening the abdominal cavity for removing appendix than in any other case. You can remove the appendix successfully and easily with little or no danger without opening the abdominal cavity itself, and I want to make a plea for this operation. I believe it is the only thing for the patient after he has had even one attack, even of what is called catarrhal inflammation, for he is continually in danger and liable to be cut off with an attack sometime when he can not meet with a surgeon and perish. We have to educate the people up to this thing.

Dr. Leech, of Crawfordsville—Mr. President: A short time ago I was called in to see a little girl in our town, ten years old, the only child in the family. The doctor asked me to come in, and said it was a case of obstruction of the bowels. Upon rectal examination I found there was a log cabin built up in the right inguinal region. Nature was preserving that case of appendicitis for the surgeon. The parents refused to have the operation performed. The patient had been waiting for the operation two weeks. I advised the operation. It was refused. Friends coincided with the physician. The patient died. The post-mortem examination revealed this fact, that there was a secretion in the appendix about the size of a No. 2 capsule. They were composed of grape seeds, green grapes, and some fœcal matter had formed. I was surprised at the essayist saying that out of a hundred cases there were four deaths.

There was an accumulation of fluid, about a quart, on the side. I don't know of any worse place to form an abscess than

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right in that region; but nature had built a log cabin there to hold it. How much better it would have been to have made an opening of that abscess instead of letting the little girl die, leaving the family heart-broken? Who is to be the judge in such cases—the man who has seen and operated upon such cases, or the man who has a perfect horror of the knife and says, with friends, No, do not go in there?

I have the distinction of having made the only operation that was made in the town, having diagnosed and decided upon such operation and saved my patient. I can name over friends on my fingers, and very many people more that I can not name, whose post-mortem examinations have proved that they died from this cause, and half of the cases were not diagnosed because opium was used.

Dr. J. F. Eastman, of Indianapolis—Mr. President: I would like to ask these gentlemen how they know by post mortem examination that an operation would have been successful. I would like to know how many operations they have made for appendicitis with recovery and how many deaths.

Dr. L. H. Dunning, of Indianapolis—Mr. President: I would like to say one other word in regard to the results of post mortems and their showing that the trouble was appendicitis where the symptoms were masked by an opiate. One speaks of feeling with his fingers a mass of pus. I don't suppose a dose of opium could so benumb the fingers that you could not make out a mass of pus. Opium in peritonitis is the greatest remedy we have, notwithstanding Robert T. Morris and Joseph Price, and their followers They have three or four followers, but they had more than that two years ago, and let me tell you they will have still fewer two years from now than they have now. I have traveled the ground over and I am convinced to my own satisfaction that I am right. Opium is one of the best remedies we have to use at the beginning of this trouble. The bowels, however, ought to be opened at the beginning, by mild means, however, and not by drastic cathartics, and this can usually be accomplished. Occasionally cases of obstruction will occur such as in the cases I have mentioned here. Then usually we can find a way of opening the bowels by the use of opium or belladonna. Occasionally we will be compelled after the acute

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stages are passed to give our cathartics; but if we attempt to give them our cathartics during the acute state of inflammation we certainly will increase the inflammation and more likely lead to perforation. I want to speak a word in favor of opium.

Dr. J. F. Hibberd, of Richmond—Mr. President: I would like to inquire if the doctor means opium of any sort, or particularly morphia?

Dr. Dunning—It don't matter. Now, I want to refer to the case mentioned by Dr. Leech, of Crawfordsville. It is a very distressing thing for a man who has the ability to open the abdomen, and who has had success in that operation, to find a clear indication for the operation, and find in the ignorance and obstinacy of the attending physician and the patient's friends and relatives an insurmountable obstacle in the way. I don't wonder that Dr. Leech was aggrieved because the opportunity to save life was denied him. I should have felt the same way—that is, in cases where the operation is clearly indicated. There was an accumulation of pus in this case cited, a clear indication for the operation; and that brings me to speak a word in regard to what I think are cases that should be operated upon. I do not give this as an imperative rule, but simply as a suggestion. I want to say that I know of no disease under the sun concerning which we must exercise better judgment than we do in this. McBurney, who was acknowledged to be a master in this line, had two deaths out of twenty-four cases, where he was surrounded by the best facilities that could be given. We will have a larger percentage of deaths if we go operating here and there and every where. Besides, he was a master. Dr. Stimson had two or three deaths in twenty-four cases. I believe a case of the kind referred to should be operated upon. Where there is a clear indication for the operation I delight to do it, and so does Dr. Eastman, and every other laparotomist, but I approach a case with fear and trembling when the indications are not clear; and I hope and trust I will never lose that fear and trembling as long as I live, in the presence of a doubtful case. These are the cases in which I think the operation is clearly indicated:

First. In grave cases growing worse. If I have a grave

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case, in twenty-four hours after I decide that it is gradually growing worse I think I may operate. Robert T. Morris gives ten reasons why every case should be operated on. He is entirely wrong. I see twenty to thirty cases of appendicitis a year, and of those cases that I have seen during the last year not one of them has died. They have all been mild cases except two. It would be perfect folly to operate upon a mild case which is getting better. You might as well cut out an eye because you have got an ulcer upon the cornea.

Second. In recurrent attacks, where there is a persistent tumor.

Third. In cases where there are symptoms of perforation. We know in some cases where there is no evidence of peritonitis, gangrene and perforation occur. You get the symptoms of that distinctly in the presence of shock and acute pain, localized, and in a few hours rapidly developed peritonitis. There is a case for the surgeon.

Fourth. In cases where pus has accumulated. In all cases where pus has accumulated. In the case mentioned by this gentleman, I do not wonder that he felt aggrieved. I should have stamped up and down that floor, and shook my fist and given vent to my indignation and wrath until they turned me out of the house if they had refused me the plain duty of operating in that case. I think I have said enough. I brought this subject up because the journals have been filled by such men as Morris and a few others who are advocating the operation in every instance. I believe it to be harmful, and will lead to many deaths. I believe the surgeon has his place, and the physician and surgeon should stand together in these cases, should rely on each other, should be like brothers, working for the welfare of their patient. We want to save the life of the patient, and not encompass his destruction.

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DISCUSSION ON DR. SMITH'S PAPER, ENTITLED "HIP-JOINT AMPUTATION."

(See page 104 for paper.)

Dr. J. R. Wiest, of Richmond—Mr. President: I am sorry the author of the paper did not call attention to a still later method of operation—that by Professor Symes. If he will be kind enough to do that in his concluding remarks, I will be obliged. I think it is an improvement on Wyeth's.

Dr. McCoy, of Columbus—Mr. President: I wish to call attention to the rapidity with which disease of this character progresses. Between Christmas and New Years, a year ago, I was called to see a boy who complained of pain in the hip. He had been playing foot-ball and had been in the habit of throwing his feet up and letting himself fall upon his buttocks, and he had damaged himself in his play that way. Within about ten days pneumonia developed, and I lost sight of the hip trouble on account of the pneumonia. When that subsided I found the hip disease well marked. On the first day of February I had Dr. Banker, of Columbus, see the patient with me. On the 3d of February we decided to examine the hip, make an incision and let that decide the result afterwards. I placed the boy under chloroform, and the simple movement of the left limb from one side of the couch to the other broke the femur in two. Other symptoms came up then that made it necessary to abandon the operation. We were not in a condition to do anything further that day. We waited a few days and placed a bag of sand to support the limb, and we are still waiting. There is partial union of that severed bone, but the hip has become anchylosed after nature had thrown out the pieces. But between that time, between Christmas and New Years and the third day of February the same year, that bone became so diseased, when there was no evidence of it before—the boy had been perfectly well—that it would not bear its own weight.

Dr. Smith—Mr. President: In reference to Symes' method, I wish to say that I was not so favorably impressed with the method as Dr. Wiest seems to have been, but I have not

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looked over the operation critically. It seemed to me that it was one that would involve this at least: that you could not terminate the operation when you care to in case the patient sank into collapse. As I understand Symes' method he dislocates and liberates the head of the femur first. Is that right?

Dr. Wiest, of Richmond—After he has passed the pressure tubes through.

Dr. Smith, of Brazil—Does he not dislocate and dissect out the head first?

Dr. Wiest—Yes, sir.

Dr. Smith—I am not prepared to say which operation would be preferable. My acquaintance is only with Wyeth's, practically, and I would not pass an opinion upon the other. It seems Symes has a very fine method, and it may be better than Wyeth's.

Dr. Wiest—Mr. President: The reason I think it is better is because I think it is easier to disarticulate the head of the bone in that way than it is when you have the compression that is held in place by the needle. It is difficult, then, to dissect out the head of the bone; it is much easier, at least, in the other case. That is the only advantage.

DISCUSSION ON DR. J. B. BERTELING'S PAPER, "EMPYEMIA."

(See page 163 for paper.)

Dr. I. C. Stark—Mr. President: I would like to ask one question in regard to the point of diagnosis. I am not sure that I heard the reader correctly, but I am inclined to think I did not, in regard to the necessity of the exploring syringe to decide between the solidification of the lung and effusion in the pleural cavity. I understood him to say that it was necessary sometimes to use an exploring syringe to diagnose the difference between effusion in the cavity of the chest and solidification of the lung.

Dr. Berteling—No. If I said that, I did not mean that it should be apprehended that way. But where there is any doubt as to whether fluid exists or not—and in some cases it is

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rather difficult to differentiate between pneumonia and pleurisy—then it is proper to do so.

Dr. Clark—Mr. President: The question in my mind is whether there should be a difficulty of the diagnosis between pleurisy and pneumonia? My observation has been that in pneumonia we always have a solidified condition of the lung, and in pleurisy it is not so. If there is pleurisy, the inter-costal space is obliterated, and in pneumonia it is not. In pleurisy the line of dullness, unless possibly interfered with to some extent by adhesions, the patient, in an erect position, will be horizontal; when the patient is reclining it will be vertical to the body, liquid obeying the law of gravity; in pneumonia the line is nearly horizontal, following the course of the surface dividing the lobes of the lung.

Dr. Robinson, of Martinsville—Mr. President: I think the best way to cure empyemia is to prevent it. When it is apparent that there is effusion in the pleural cavity remove by aspiration. Empyemia, as the paper stated, has resulted from various causes Just before the dinner hour one doctor was discussing the means of differentiating the difference between pneumonia and empyemia. It occurs to me there ought to be no difficulty in making the diagnosis. It is sufficient only to remember that in a solidified lung the resonance is increased, while in pneumonia it is diminished or entirely destroyed. I believe the doctor has the correct idea of treating empyema, that is making the incision in the intercostal space, thorough drainage, washing the cavity. If that is not sufficient trephine a rib. The doctor who depends upon aspiration to cure empyema very often fails.

Dr. Moffett, of Rushville—Mr. President: This is another paper that is eminently practical, because it gives a direct bearing upon what has preceded. The Doctor, in accounting for that little venomous cocci getting into the pleural cavity that was shut, had to account for it by being effused from the pleural membrane. You all took notice of that remark, in all probability. Now, that was eminently a good, practical paper —one that is apropos and suited to the interest of the everyday practitioner; and it is an illustration—this paper is—of all the consequences of ill-timed or unwise treatment. Now,

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we can hardly expect pleural effusion without antecedent pleuritis, and in all the cases the Doctor related out of twelve which he reported that followed pneumonia, or something of that kind, there was one thing all the time left out, and that is, what had been the history particularly with regard to the treatment of that case? He failed to name whether the individual, prior to the difficulty which he saw, had suffered pain as antecedent to what he held to be as the consequence. In all the cases which he reported where he found this, did he make the observation from the beginning? He told us he had pain, and pain in these cases means that you have an inflammatory action of this membrane; and it brings it to another practical point, and that is that every time that we are called to an individual that has a slight cough with pain, associated with a little chill, or no chill at all, but perhaps a little feverish excitement, we ought to be very careful to make a diagnosis, whether we have pleuritis or pleural œdœma; and what the pain means, for pain is one of the general accompaniments connected with inflammation, especially when it occurs in the serous membrane. And these are the reasons that it strikes my mind that, looking at this point, there are many points in the discussion of the paper, and I want to mention this as a practical point in our every-day life, and I believe the largest share of these results is either from not having opportunity to see them in time or from neglect to make the diagnosis and apply the proper treatment. And hence it matters not how small or how indifferent the pain may be, it is the part of the physician to satisfy himself well what causes the pain, and upon what this pain depends; and if he decides that it is pleurisy, and that that is the cause of all these abscesses, you have it in pleurisy. In other words, there is an effusion, and we were told when we were young men in school that sometimes an effusion would take place within twenty-four hours that might prove fatal in its results. Now, you are all satisfied. There is hardly a practitioner here but who knows what the remedy is. Apply something externally that will stop that process, and I have always found the best thing is just to apply a blister right over the seat of pain. The result is, you create an artificial disease, different from the one internal; hence you cure the patient and

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prevent the disorder that has been so beautifully portrayed and briefly stated in the very handsome paper read by the gentleman from South Bend.

Dr. Berteling—Mr. President: I wish to state that my paper was not written on diagnosis of pleurisy, or what is to be done for pleurisy. We all know that pleurisy means inflammation and pain in the pleural membrane, and we know sometimes that we have effusion, not necessarily because in dry pleurisy you have no effusion, yet you have intense pain. I would also differ from the saying that it is not absolutely necessary that, in every case of effusion in the pleural cavity, we should have marked pain. I know of two cases that occurred within the last year where fluid was discovered in the chest that were unattended by pain. The paper was not for the purpose of discussing the differential diagnosis between pleurisy and pneumonia, but simply what is to be done when you have pus in the pleural cavity. I wish, also, to explain to the gentleman who spoke before dinner, who asked whether I intended to say that the exploring syringe should always be used internally to determine whether it is pleura or pneumonia indicated. I did not mean that. I simply meant that, when we have diagnosed an effusion and accumulation of fluid in either one or the pleural cavities, the syringe is for the purpose of determining whether it is pus or fluid. If it is simply serous fluid, we apply blisters, or some other means, acetate of potash and fluid dispersers. I had an attack myself last year. I had been rather in the habit of aspirating some chests. I think my reputation suffered because I did not have my own aspirated. It was not necessary. I do not aspirate every chest in which I find fluid, but only those cases where the fluid was doing absolute damage. My paper was simply to show what we should do with such fluid, when we know and find out it is pus. I thank you for the discussion.

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REPORT OF THE COMMITTEE ON NECROLOGY.

Mr. President:

For several years I have made my call for information concerning the mortality among the members of this Society on blanks especially prepared for the purpose by the Secretary, but the supply of these blanks was exhausted last year, and for the present service I sought information on printed postal cards, specifying in a general way the particulars needed in each case for an appropriate obituary, adding that I should be glad to have the notices of deaths prepared for publication, but signified my readiness to write the obituary when requested and sufficient facts were furnished.

Early in March seventy-four of these postals were mailed to the Secretaries of the county medical societies, as printed in last year's volume of our transactions, and I have received twenty-one responses, twelve reporting no deaths in their respective societies, and of the other nine counties Dubois reported the death of Dr. Oliver E. De Bruler; Boone, of Dr. A. G. Porter; Fayette, of William J. Pepper; Franklin, of Dr. H. G. Averdick; Gibson, of Dr. John A. Malone; Grant, of Drs. James S. Shively and William Lomax; Huntington, of Dr. La Grange Severance; Owen, of Dr. William V. Wiles; Randolph, of Dr. W. Gray Smith; Vigo, of Dr. Samuel C. Preston, and Whitley, of Dr. Daniel M. Marshall, making a total of eleven deaths thus returned, and in each case, except that of Dr. Averdick, the report was of a character to incorporate in this communication without change. In the case of Dr. H. G. Averdick, I received last evening from Dr. R. J. Owens, Secretary of Franklin County Medical Society, the announcement of his death too late to obtain facts for an obituary.

Besides the foregoing I have received from Secretary Elder notice of the death of Dr. Charles E. Wright, of Marion County; Dr. S. G. Thompson, of Wabash County; Dr. A. M. Spaulding, of Lagrange County, and Dr. W. A. Yohn, of Porter County, but in neither case has any information been forwarded to me from the County Society; nor have I had facts from any source to enable me to prepare an obituary.

The total number of deaths herein reported is sixteen.

Respectfully submitted,

JAS. F. HIBBERD,

Committee.

INDIANAPOLIS, IND., May 11, 1893.

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The following are the names of the members of the State Medical Society of whose death I have information, the place of death of each, and the date of death and age of deceased when furnished me.

Name of Deceased.	Place of Death.	Date of Death.	Age.
Dr. O. E. De Bruler . . .	Ireland, Ind.	April 20, 1892 .	35 years.
Dr. William Gray Smith. .	Winchester, Ind . . .	Aug. 7, 1892 .	55 years.
Dr. William J. Pepper . .	Connersville, Ind. . .	Aug. 30, 1892 .	62 years.
Dr. Daniel M. Marshall. .	Columbia City, Ind. .	Oct. 13, 1892 .	69 years.
Dr. William V. Wiles. . .	Spencer, Ind.	Oct. 24, 1892 .	65 years.
Dr. Samuel C. Preston .	Greencastle, Ind . . .	Jan. 6, 1893 .	47 years.
Dr. LaGrange Severance. .	Huntington, Ind. .	Jan. 26, 1893	54 years.
Dr. John A. Malone . . .	Princeton, Ind. . . .	Feb. 16, 1893 .	56 years.
Dr. James S. Shively . . .	Marion, Ind.	April 11, 1893 .	80 years.
Dr. A. G. Porter . .	Lebanon, Ind	April 11, 1893 .	71 years.
Dr. William Lomax. . . .	Marion, Ind.	April 27, 1893 .	81 years.
Dr. S. G. Thompson. . . .	Wabash, Ind.	Feb. 22, 1893 .	50 years.
Dr. Charles E. Wright . .	Indianapolis, Ind. . .	Oct. 25, 1892 .	66 years.
Dr. H. G. Averdick. . . .	Franklin County, Ind.		
Dr. A. M. Spaulding . . .	Lagrange County, Ind.		
Dr. W. A. Yohn	Porter County, Ind. .		

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WILLIAM GRAY SMITH, M. D.,

BORN IN NEW CARLISLE, OHIO, APRIL 18, 1837.

DIED IN WINCHESTER, IND., AUGUST 7, 1892. AGED 55 YEARS.

Cause of death, hydropericardia. The doctor was educated in the Jay County common schools; had a good common education. He studied medicine in Winchester, Ind. He entered the office of Dr. Crowly in 1861; commenced the practice at Fairview, Randolph County, in 1863. He remained there one year and then moved to Deerfield, Randolph County, where he continued the practice until 1868. In the fall of '68, he attended the Ohio Medical College, at Cincinnati, and graduated March, 1869. In July, the same year, he moved to Winchester, Ind., where he continued the practice to his death. In 1878 he attended the Bellevue Hospital Medical College, New York; graduating in 1879. He was a charter member of the Randolph County Medical Society; a member of the Delaware District Society; also a member of the State Society. His character was very good as a citizen. He was a member of the Masonic Order; was married in 1866 to Miss Julia Lucas, of Grant County, Ind. He leaves a wife, two sons and one daughter. Doctor Smith was a genial, good fellow, an excellent man and physician.

[Prepared by J. J. Evans, Secretary Randolph County Society.]

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OLIVER E. DE BRULER, M. D.

MEMBER OF DUBOIS COUNTY MEDICAL SOCIETY.

BORN 1857, IN INDIANA.

DIED APRIL 20, 1892, AT IRELAND, IND.

His lay education was obtained in the public schools. His preceptor was Dr. Z. C. Kelso, and he graduated in the Cincinnati College of Medicine and Surgery in 1879. He practiced medicine at Bedford, Maukport, Valley City and Ireland, Ind. He was a member of his County Medical Society and of the State Medical Society. Dr. De Bruler was married at Mauckport, Ind., August 15, 1880, to Miss N. E. Davidson, and leaves a widow and three children, two sons and a daughter. He was a member of the Knights of Honor for several years, and belonged to the M. E. Church, of which he was a prominent member. He was an earnest and self-sacrificing physician, and a true husband and father. Dr. De Bruler died of pulmonary consumption; aged 35 years.

[Prepared by Dr. B. B. Brannock, Jasper, Ind.]

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WILLIAM J. PEPPER, M. D.

BORN IN MASON COUNTY, KY., SEPTEMBER 26, 1830.

DIED IN CONNERSVILLE, IND., AUGUST 31, 1892.

The cause of his death was hepatic cirrhosis. He had an academic education, and was very proficient in Latin, as well as the English language. He was a student of Prof. G. R. Chitwood, M. D., in Connersville. He then attended the lectures at the Western Reserve Medical College at Cleveland, Ohio, where he graduated with honors in 1856, after which he returned to Connersville and practiced awhile with his preceptor; then he established his own office in Connersville, where he has been actively engaged in practice for about thirty-six years, or until within a few weeks of his death. He joined the Fayette County Medical Society in 1879, and was a member in good standing until he died. He was a member of the Presbyterian Church, but belonged to no secret orders nor benevolent societies. He married Mary S. Frybarger, daughter of George Frybarger, of Connersville, August 4, 1858, to whom were born seven children, three of whom, and his widow, alone survive him. He was a remarkably correct diagnostician, a kind, sympathetic and successful practitioner, much of which was gratuitous for such as were unfortunate, and he had the confidence of the laity as well as of the profession of Fayette County.

[Prepared by Charles Wyman, M. D., Secretary of Fayette County Medical Society.]

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DANIEL M. MARSHALL, M. D.

MEMBER OF WHITLEY COUNTY MEDICAL SOCIETY.

BORN MARCH 5, 1823, NEAR WINCHESTER, INDIANA.

DIED OCTOBER 13, 1892, IN COLUMBIA CITY, INDIANA.

He studied medicine with Dr. J. S. Shively, of Marion, Ind., and graduated at Rush Medical College in the year 1845. He practiced medicine at North Manchester and Pierceton, Ind., for many years, and removed to Columbia City in 1874, but was soon thereafter compelled to relinquish his practice on account of failing health. The last twelve or fourteen years of his life were passed in retirement. He was a member of the Masonic fraternity and of the Presbyterian Church, and was a gentleman of high social standing, learned, and skillful in his profession. He died of chronic bronchitis, aged 69 years, leaving a wife and one son.

[Prepared by N. I. Kithcart, Secretary Whitley County Medical Society, Columbia City, Ind.]

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DR. G. R. CHITWOOD.

BORN MAY 10, 1805, NEAR GALLIPOLIS, OHIO.

DIED MAY 6, 1893, IN CONNERSVILLE, INDIANA.

He studied law when from 16 to 20 years of age, and afterward medicine, when he graduated at the Western Reserve College of Medicine, at Cleveland, Ohio, in 1831, and directly located in the practice of medicine at Scipio, Franklin County, Ind. In 1832 he married Martha A. Davis, by whom were born nine children, seven of whom survive him; his wife died last autumn. He moved to Liberty, Ind., in 1838, and in 1840 was admitted to the bar, practicing both law and medicine, and in 1841 was elected Associate Judge of Union County Circuit Court, in which position he served seven years. In 1846 he received the Honorary degree of Doctor of Medicine from the Cleveland College of Medicine, where he first matriculated, and in 1859 was elected to the Chair of General Pathology in the Cincinnati College of Medicine and Surgery, and to the Chair of Obstetrics in 1861. He was a member of the Presbyterian church for many years. He was buried under the rites of Masonry, the services being conducted by Warren Lodge, No. 15, F. and A. M., of Indiana, with full Masonic honors, in the Connersville City Cemetery, his funeral being largely attended.

[Prepared by Chas. Wyman, Secretary Fayette County Medical Society.]

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WILLIAM V. WILES, M. D.

BORN MARCH 27, 1827, IN RIPLEY, OHIO.

DIED OCTOBER 24, 1892, IN SPENCER, IND.

The cause of his death was rheumatic meningitis—a sequel of epidemic influenza.

His lay education was obtained at Fairview Academy, from which he graduated.

At the age of twenty-one he began the study of medicine, in the office of Dr. Arnold, of Connersville, Ind. His first course of lectures was taken at Cleveland, Ohio. He graduated at Rush Medical College, Chicago, in 1860.

He practiced medicine at Cataract, Ind., till 1862, when he enlisted in the service of his country, and was appointed, by Governor Morton, Surgeon of the Eighty-fifth Regiment, Indiana Volunteers, in which position he served till the close of the war. In 1866 he located in Spencer, where he was actively engaged in the practice of his profession till the time of his death.

Dr. Wiles ranked among the first in his profession. At the time of his death he was President of the Owen County Medical Society. He was Vice-President of the State Medical Society in 1886.

He was twice appointed Trustee of the Blind Asylum at Indianapolis.

He frequently served on the School Board of Spencer.

He was Past Commander of Gettysburg Post of the G. A. R.

He ranked high as a Mason, his funeral being conducted according to the ritual of that order.

He was a valued and consistent member of the Presbyterian Church.

March 11, 1856, he was married to Parthena I. Jennings, who, with their son and six daughters, survives him.

[Prepared by Allen Pierson, M. D., Spencer, Ind., Sec. O. C. M. S.]

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SAMUEL C. PRESTON, M. D.

BORN IN GREENCASTLE, IND., ON THE 15TH OF OCTOBER, 1846.

Was a member of the class of 1869, in Indiana Asbury University, but did not graduate. His preliminary medical studies were, I think, pursued in the office of his father, Dr. Preston, of Greencastle, who had a reputation second to none in the State. He attended his first course of lectures at the Miami Medical College, Cincinnati, during the winter of 1868, and his second term in the winter of 1869 and 1870, when he graduated. Immediately after graduation he located in Terre Haute, where he practiced until his illness forced his retirement, spending the last two months of his life at his old home in Greencastle, where he died January 6, 1893. He connected himself with the Vigo County Medical Society in 1874, the year of its organization, and in 1876 was elected its Secretary; and so efficiently did he discharge the duties of the office that he held it for four consecutive years. His observation was quick and accurate, cool and sound in judgment, kindly and sympathetic in his contact with the sick; was honorable, upright and manly in all his dealings with others; was the children's friend; had the confidence, respect and esteem of all his acquaintances and friends; was a Mason, member of Terre Haute Lodge, No. 19; knew the termination of his disease, prepared himself for it, and met the end, as a man always should, with his face to the front.

[Prepared by W. C. Eichelberger, M. D., Secretary Vigo County Medical Society.]

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DR. H. G. AVERDICK.

BORN FEBRUARY 2, 1826, AT OESEDE, NEAR OSNABRUECK, GERMANY.

DIED OCTOBER 25, 1892, AT OLDENBURG, IND.

Dr. Averdick received a classical education at the Gymnasium, Carolinum. He acquired a good knowledge of Latin while there. He took great pleasure in speaking of his school days at Osnabrueck. In the year 1847 he came to America and located at Cincinnati, where he studied pharmacy. Whilst pursuing his medical studies he was druggist at the old Commercial Hospital, and served there at the same time as the eminent surgeon, Dr. W. W. Dawson, was interne at that institution. In 1852 he went to Oldenburg, Indiana, and remained there during the rest of his life, with the exception of several years spent in the army during the rebellion.

Cicero once said, "In nothing do men approach so near the gods as in giving health to men," and this saying might be well applied to Dr. Averdick. He was physician to the convent and academy at Oldenburg for forty years. He offered his services to the government, and was soon appointed surgeon of the Thirty-fifth Infantry Regiment of Indiana Volunteers. He joined the army in 1861, and remained until the close of the war. Dr. Averdick was President of the Franklin County Medical Society for several terms, and was an active member of the Indiana State Medical Society and of the American Medical Association. He was a member of the Board of Pension Examiners for his district. The fatal illness which terminated Dr. Averdick's life dated back to last winter. During the month of July he came to Cincinnati and had the advice of the leading physicians of this city, but his disease was incurable. During his sickness he bore himself patiently like a soldier, and not once during his whole illness did he seem conscious of the fact that he had cancer of the stomach. He may have known the nature of his disease, but he never spoke of it. On October 25, 1892, he died, surrounded by his family and loving friends.

[Prepared by J. C. McMechan, M. D., Cincinnati, Ohio.]

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DR. CHARLES E. WRIGHT.

BORN NOVEMBER 1, 1843, IN INDIANAPOLIS, IND.

DIED FEBRUARY 22, 1893, AT INDIANA CENTRAL HOSPITAL FOR INSANE.

Dr. Charles E. Wright, Superintendent of the Central Hospital for the Insane, died February 22, after a short illness. Perhaps no death in the profession in this city has been lamented by a larger and more varied circle. Dr. Wright was not only a widely known general practitioner; he was also the chief medical and executive officer of the largest charity in Indiana. More than this he had made his personality felt in many and various walks of life outside of medicine, and in such manly, unselfish and honorable ways that his sudden death is mourned in many and in varied circles. The events of Dr. Wright's life run as follows:

Charles Edward Wright was born in Indianapolis, November 1, 1843. He attended Asbury (now DePauw) University, and afterwards studied medicine at the Medical College of Ohio, in Cincinnati, where he was graduated in March, 1868. He immediately came to Indianapolis and engaged in general practice, but gave special attention to diseases of the ear, eye and nose. In 1869 he was demonstrator of anatomy in the Indiana Medical College, afterward professor of materia medica and therapeutics, later Secretary, and finally President of the institution. In 1875 he was President of the City Board of Health, and was President of the Indiana Medico-Legal Fraternity in 1877 and 1878. He held the chair of materia medica and therapeutics in the Medical College of Indiana and in the medical department of Butler University. During the war he was Quartermaster's Sergeant in the camp of instruction, and afterward was Superintendent of commissary stores at Nashville, Tenn., and chief clerk of the chief commissary of the subsistence department of Kentucky in the Union army. He was a contributor to medical journals, and was for some time editor of the Indiana Medical Journal. He was interested in the drama as an amateur, and was President of the Scottish Rite Dramatic Association, and filled the same office for the Indianapolis Shakespeare Club. He was a Knight Templar and a Knight of Pythias. He belonged to no church. Four years ago, when the Harrison-Gapin administration was ousted from the Central Hospital for the Insane, Dr. Wright was appointed Superintendent. In November, 1870, he married Miss Anna Haugh, of Indianapolis, who survives him, together with two children, Charles E. Wright, Jr., and Mrs. Edmund F. Gall, of this city.

The Marion County Medical Society met in special session upon the evening of the 23d, and passed resolutions of condolence and regret.

The funeral services were held in the reception hall of the main building at the Hospital, February 25, at 10 A. M. The officiating ministers were Rev. Augustus R. Steck, of the English Lutheral Church, and the Rev. Joseph S. Jenks, of the Episcopal Church. The Scottish Rite services were read by Nicholas R. Ruckle, assisted by Joseph W. Smith and William H. Smythe.

The body was buried at Crown Hill Cemetery. The following named gentlemen acted as pall-bearers: Austin H. Brown, Frank T. Holliday, Elijah S. Elder, William L. Taylor, G. F. Branham, Horace Wood, John T. Brush and Roscoe O. Hawkins.

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LA GRANGE SEVERANCE, M. D.

MEMBER OF HUNTINGTON COUNTY MEDICAL SOCIETY.

BORN DECEMBER 28, 1839, AT NEWPORT, MAINE.

DIED JANUARY 26, 1893, AT HUNTINGTON, INDIANA.

He attended the public schools and academy in his native town until the age of fourteen, when he entered the printing office of the Bangor Whig and Courier, of Bangor, Me., then edited by James G. Blaine. In November, 1861, he enlisted in Company H, 12th Maine Volunteers, and served until the close of the war, when he entered the Cincinnati Medical College, from which he graduated in May, 1868. He first practiced medicine in South Whitley, Ind., but in 1869 he located in Huntington, where he continued in the practice of medicine up to the time of his death, which resulted from heart disease. He was a member of the following Masonic lodges: Amity, No. 483; Council No. 51; Chapter No. 27; Huntington Commandery, No. 35, Knights Templar, and was a Scottish Rite Mason. He was also a member of the Knights of Pythias, Grand Army of the Republic, and the Loyal Legion of Indiana, and belonged to the Episcopal mission of Huntington. He was married in 1870, at Huntington, Ind., to Henrietta E. Drummond, who, with six children, survives him.

He held the position of Secretary of the County Board of Health for six years; was Company Surgeon for the C. & E. R. R. nine years, and a member of the Board of Medical Examiners for the Pension office. At the time of his death he was President of the Huntington County Medical Society.

Dr. Severence was a surgeon of acknowledged ability, a conscientious physician, and was highly esteemed by all who knew him intimately for his noble qualities of heart and mind.

[Prepared by Edwin Wright, Secretary Huntington County Medical Society.]

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DR. JOHN A. MALONE.

MEMBER OF THE GIBSON COUNTY MEDICAL SOCIETY.

BORN DECEMBER 10, 1837, AT OWENSVILLE, INDIANA.

DIED FEBRUARY 16, 1893, AT PRINCETON, IND.

Dr. Malone attended the common schools of his native town, and afterward taught school for a time. He commenced to read medicine with Dr. V. T. West, of Princeton, in 1862, and in September of the same year enlisted in the United States Service as a member of the 42d Indiana, but was discharged from said service in the following November, having contracted a disease while at Camp Carrington, Indianapolis. Returning home, after somewhat regaining his health, he again entered the office of Dr. V. T. West.

In 1864–5 he attended lectures at Ann Arbor, Mich. After returning from College he formed a partnership with Dr. West, which continued until about 1869. He continued the practice of medicine up to a year before his death, which resulted from valvular disease of the heart.

The Doctor stood well among the profession, and was a good citizen. He was a member of the I. O. O. F. for a number of years. He was married to Harriet Trippett January 1, 1868. A family of three children, two of which are grown, survive him. He was a member of the Cumberland Presbyterian church.

[Prepared by A. R. Burton, Secretary Gibson County Medical Society.]

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ALBERT G. PORTER, M. D.

MEMBER BOONE COUNTY MEDICAL SOCIETY.

BORN MAY 29, 1821, IN LEWIS COUNTY, KY.

DIED APRIL 11, 1893, AT LEBANON, IND.

His literary education was obtained in the common schools and in Miami University at Oxford, Ohio.

He graduated in medicine in 1849 in Transylvania Medicine College at Lexington, Ky.

He was married to Miss Julietta C. Moore, of Georgetown, Ill., in 1849, who, with his one son and four daughters, survives him. He located in Lebanon in 1870. He was a member of Boone County Medical Society since its organization, in 1873, and served as its Secretary ten years. He never missed attending its regular meetings but once, when not professionally engaged, in twenty years. He was an honored member of Indiana State Medical Society, having been elected its Vice-President in 1887. He was a member of the American Medical Association. He was a member of the Masonic fraternity, and was buried with its honors.

Dr. Porter was attacked with paralytic hemiplegia while engaged in an obstetric case at 2:30 A. M., January 23, 1893, in this city, and died April 11, 1893.

He was generous, kind, honorable and humane.

[Prepared by D. H. VanNuys, M. D., Lebanon, Ind.]

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WILLIAM LOMAX, M. D.

MEMBER OF GRANT COUNTY MEDICAL SOCIETY.

BORN MARCH 13, 1813.

DIED APRIL 27, 1893.

He was a native of North Carolina, but came, with his parents, to Indiana when but five years old. His early education was obtained in the district schools near his father's home, and in 1834, when he was twenty-one years of age, he began the study of medicine in the office of Dr. Joel Ruggs, of Newport, Ind.

In 1837 he located at Marion, Ind., where he continued to reside until his death. He was a graduate of the Indiana Medical College, and of the Medical Department of the University of New York.

He was one of the organizers of the Grant County Medical Society in 1848.

He received the first appointment as Surgeon in the late war issued by Governor Morton, and from 1861 to 1865 served in the various capacities of Surgeon of the Twelfth Regiment of Indiana Volunteers, Surgeon-in-Chief of Division, and Medical Director of the Fifteenth Army Corps.

He attended, as a delegate from his county society, the third annual meeting of the American Medical Association, at Cincinnati, in May, 1850. He also attended the first annual meeting of the State Society, in May of the same year, as a representative of the Grant County Medical Society.

Dr. Lomax had a State reputation as a physician and surgeon. He was devoted to his profession, and was active in his support of every measure calculated to advance its influence. His love for his profession and his earnest desire to promote its interests, especially in the direction of higher medical education, induced him two years ago to make a munificent gift to the Medical College of Indiana, of which institution he was President of the Board of Trustees.

He was a prominent and influential citizen, and an honorable, Christian gentleman.

He died of pneumonia in the eighty-first year of his age.

[Prepared by A. A. Hamilton, M. D., Marion, Ind.]

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JAMES S. SHIVELY, M. D.

BORN IN MORGANTOWN, VA., APRIL 8, 1813.

DIED AT MARION, IND., APRIL 11, 1893.

Dr. Shively located in Marion in February, 1836, where he continued to reside until the day of his death; and where he was known and honored for his exemplary life, integrity of character, and kind and courteous disposition. For a period of nearly fifty-six years the doctor was actively engaged in the practice of his profession. He always enjoyed a large and lucrative practice, and retained, in an unusual degree, the friendship and confidence of his patrons. He was one of the organizers. in 1848, of the Grant County Medical Society; was several times its President, and was one of its most active and honored members. He was ever loyal to the code of the regular profession.

As a citizen, the Doctor lived a temperate and upright life; always giving his aid and influence on the side of morality, and in the upbuilding and advancement of his adopted town and county. In politics Dr. Shively was one of the recognized leaders of his party, and was four times elected to serve his constituents in the State Legislature. To him, as Joint Senator, the profession is indebted for the present law governing the practice of medicine. His widow, Mrs. Harriett O. Shively, *nee* Marshall, one son, Dr. M. T. Shively, a prominent physician of Marion, and two married daughters, survive him.

[Prepared by A. A. Hamilton, M. D., Marion, Ind.]

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CHARLES S. FRINK, M. D.

MEMBER OF THE ELKHART COUNTY MEDICAL SOCIETY.

BORN IN JEFFERSON COUNTY, NEW YORK, APRIL 3, 1835.

DIED AT ELKHART, IND., JULY 8, 1893.

Dr. Frink received his lay education at Fort Wayne College.

Graduated in medicine at the Michigan University Medical College in the spring of 1859.

He practiced medicine at Rome City and in Lagrange County, Indiana.

He was commissioned by the President Assistant Surgeon of Volunteers October 4, 1862, was promoted to Major and Surgeon March 3, 1864, to Brevet Lieutenant-Colonel August 15, 1865.

He practiced medicine from the close of the war, in 1865, until his death, where he was highly esteemed by all as of unusual ability and influence in his profession, and as a sincere and conscientious Christian in the M. E. Church, and as a leader in both.

He was a member of the Local, City, County and State Medical Societies.

He was a charter member of the Indiana Department, Commandery of the Loyal Legion and of the G. A. R., and was a member of the Chosen Friends.

He served his county as Coroner from 1884 to 1886, and several terms as Secretary of the City Board of Health.

He was a contributor to the Government Medical and Surgical History of the Rebellion, and author of several papers to the medical journals.

He was married in 1858 to Arabella J. Vermilyea; two children survive, Charles W., M. D., and a daughter, and to Mrs. Angeline S. Lowe in 1871, to whom five children survive.

Dr. Frink died suddenly in his office chair from heart disease.

[Prepared by Dr. W. A. Neal.]

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TRANSACTIONS

OF THE

Indiana State Medical Society

AT THE

FORTY-FOURTH ANNUAL SESSION,

May 11 and 12, 1893.

FIRST DAY.

MORNING SESSION.

PLYMOUTH CHURCH, INDIANAPOLIS, IND.

The President, Dr. George F. Beasley, of Lafayette, called the Society to order at 10 o'clock A. M.

Prayer was offered by Rev. Horace A. Cleveland, of Meridian Street M. E. Church, Indianapolis.

The President.—The Secretary suggests that the calling of the roll of delegates be postponed until this afternoon, for the reason that many of the trains on which they will arrive are not in yet, but will be in between now and noon. It has been the habit to postpone the calling of the roll until the afternoon session, and it will be so ordered if there is no objection. The Chair hears none.

The Secretary will announce the Committee on Credentials.

The Secretary.—The following named members constitute the Committee on Credentials:

Dr. E. D. Laughlin, Chairman; J. H. Stillson and C. J. Keegan.

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The President.—The next business in order is the report of the Committee on arrangements, Dr. F. C. Woodburn, Chairman.

Dr. F. C. Woodburn, Chairman of the Committee on Arrangements, submitted the following report:

Mr. President and Members of the Indiana State Medical Society:

Your Committee on Arrangements for 1893 respectfully submits the following report:

The usual one and one-third railroad rates, on the certificate plan, have been secured, and a satisfactory reduction in hotel rates has been made by the leading hotels of the city.

A circular letter, giving notice of the meeting, and announcing the above railroad rates and hotel arrangements, was mailed each member of the Society in March.

A copy of the official program has also been mailed the officers of the Society and each member presenting a paper at this meeting.

The programs have been very kindly furnished by Wm. H. Armstrong & Co., of Indianapolis.

The following is the list of expenses incurred by the committee:

To rent of Plymouth Church	$75 00
To printing circulars for members	6 00
To printing circulars for exhibitors	1 50
To paper (letterheads)	5 00
To printing envelopes (1,600)	5 50
To postage	19 00
To badges	4 00
To expense of agent Central Traffic Association	17 00
To decorations	5 00
To registration expenses	4 00
Total	$143 50

FREDERICK C. WOODBURN,
Chairman Committee of Arrangements.

Dr. G. W. Burton, of Mitchell—Mr. President: I move the report of the committee be accepted.

The motion was seconded.

The motion was agreed to.

The Secretary—Mr. President: I have a report from the Committee on Legislation that had perhaps better be read now. It is as follows:

To the President and Members of the Indiana State Medical Society:

The Committee on Medical Legislation met at Indianapolis, Ind., a few days prior to the convening of the Legislature, and formulated such bills as the committee thought ought to pass in the interest of the people and the profession. I

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regret to report, however, that but little was accomplished in the way of passing medical laws by the last Legislature. In fact, nothing.

Respectfully submitted,

NATHANIEL D. COX,

Chairman of the Committee on Legislation.

Dr. J. R. Weist, of Richmond—Mr. President: I move the report be accepted and the committee be discharged.

The motion was seconded and carried.

The President—The report of the Secretary is now in order.

Dr. Elder, Secretary, submitted the following report:

Mr. President and Members of the Indiana State Medical Society:

Again I have the privilege of making the Secretary's annual report.

It is with gratification and pleasure that I am able to note the prosperous condition of the work of the Society during the past year, and the harmonious conditions existing between the State Society and her auxiliaries and between the members of the various local societies. So far as I know no inharmonious relations exist—certainly none have been officially reported to the State Society. No cases of appeal from either the members, or any county society have been referred to the State Society, and so far our Committee on Ethics have nothing before them.

At the time of the meeting last year we had reports from forty-six county societies, with 702 paying members. We stated that we were expecting reports from at least twenty-five additional societies with 450 members. Our estimate proved below the actual figures, for our annual report prints reports from seventy-two societies in existence at the time of the meeting, and two organized subsequently, making a total of 1,227 paying members. This is an increase of twenty-six paying members over any preceding year. So far this year forty-one societies have reported with 684 members. We confidently expect reports from thrity-two other societies with members enough to exceed the total membership of last year.

The changes so far as reported are: Admitted, 153; suspended and dropped for non-payment of dues, 128; removed, 35; withdrawn, 10; expelled, 11; died, 12. A large majority of those marked suspended for non-payment of dues, will reinstate themselves before the transactions go to press.

The deaths already reported, number twelve. One peculiarity about our necrological list is the large proportion of old members who have died during the year. Drs. Wiles, De Bruler, Yohn, Spaulding, Wright, Severance, Porter, Shively and Lomax were among our oldest members. One ex-Vice-President, Dr. Porter, and one ex-President, Dr. Lomax, are among the number. The familiar faces and figures of these old members will be sadly missed, especially that of Dr. Lomax, who, having become a member of the State Society in 1850, has rarely ever missed one of its meetings. No member ever exerted greater influence for the welfare of the Society than he. These old members may be said to have belonged to the heroic age in medicine in our State They fought battles, won victories and in various ways prepared the way for our present flourishing Society. The remnant of them constitute the old guard. Although dying, they never surrender. If we are as true in maintaining the honor and dignity of the profession throughout the commonwealth as these veterans have been in placing

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us in the favorable position we are to-day, the future prosperity and honor of our Society are secure.

The Secretary regrets to have to acknowledge an oversight in not submitting to the various County Medical Societies, a circular letter relative to expressing their views upon the place of meeting as provided by the resolution of Dr. Wm. Flynn at the close of the meeting last year. (See page 323, Transactions, 1892) Upon the suggestion of several delegates, I recommend that the question be acted upon by the delegates at a full session early in the meeting, each County Society being allowed one vote, or that it be referred to the Nominating Committee, which is composed of one member from each Society. Either disposition of the matter will be a satisfactory solution of the question.

I append financial statements and reports. Very respectfully,

E. S. ELDER, M. D.,
Secretary.

INDIANAPOLIS, May 9, 1893.

INDIANA STATE MEDICAL SOCIETY TO WM. B. BURFORD, DR.:

1892.		To merchandise as per bill rendered	$21 15
Sept.	27.	¼ rm. 18-lb. legal	1 50
"	27.	¼ rm. 18-lb. fools cap	1 00
"	27.	1 qt. musilage	60
"	27.	½ pint red ink	35
"	27.	1 gro. ½-in. C bands	2 50
"	27.	1 gro. ¼-in. C bands	1 75
"	27.	1 gro. 32 bands	80
"	27.	1 gro. 16 bands	40
"	27.	1 large morocco case	4 00
Dec.	16.	2 blade eraser	1 25
"	19.	1 rubber ruler	40
"	19.	1 bottle ink	30
1893.			
Feb.	22.	1 qt. Arnold's ink	60
"	22.	1 pt. red ink	75
Mar.	20.	1 box gold seals	40
"	28.	1,000 env. ptg., Secretary; 200 env. ptg., Treasurer; 200 env. ptg., President; 200 env. ptg., Vice-President; 200 env. ptg., Ass't Secretary	5 50
"	29.	1,000 letter heads, Secretary; 200 letter heads, President; 200 letter heads, Vice-President; 200 letter heads, Ass't Secretary; 200 letter heads, Treasurer	9 10
"	30.	200 circulars	2 50
Apr.	27.	1 qt. mucilage	60
"	27.	½ pt. blue ink	35
"	27.	½ pint red ink	75
"	27.	1 doz. mercantile pencils	49
"	27.	1 doz. penholders	40
"	27.	¼ rm. hardware paper	2 00
		Total	$59 35

Received payment,

WM. B. BURFORD.

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INDIANA STATE MEDICAL SOCIETY TO WILLIAM B. BURFORD, DR.:

1893.		
	To merchandise as per bill rendered	$19 00
May 7.	500 certificates	4 50
" 9.	500 ¼ folio circulars	4 00
" 14.	1 two-blade eraser	1 25
" 14.	1 dozen rubber head pencils	50
" 14.	1 dozen sheets blot paper	75
" 14.	1 bottle red ink	25
" 14.	½ dozen bottles black ink	50
" 24.	2,500 No. 6½ envelopes, printed, six forms	8 00
" 24.	1,000 No. 9 envelopes, printed, six forms	4 00
" 29.	2,500 letter-heads, six forms	12 50
" 29.	5 lbs. twine, 18 balls	1 25
" 29.	5½ lbs. twine, large	1 75
" 29.	¼ ream 30x40 hardware	2 50
" 29.	¼ ream 24x36 hardware	1 50
	Total	$62 25

Received payment,
WILLIAM B. BURFORD.

INDIANAPOLIS, IND., May 13, 1893.

E. S. ELDER, M. D., SECRETARY, IN ACCOUNT WITH JOSEPH STILLSON, M. D., TREASURER, INDIANA STATE MEDICAL SOCIETY:

Dr.

To dues from 1,227 members	$1,227 00	
To cash from sale of transactions	4 00	
		$1,231 00

Cr.

By cash to Treasurer	1,231 00

Respectfully,
E. S. ELDER, M. D.,
Secretary.

Dr. Laughlin, of Orleans—Mr. President: I move that the report of the Secretary be received, except so much of it as refers to the place of meeting next year, and that that matter be referred to the Committee on Nominations.

The motion prevailed.

The President—The report of the Treasurer is next in order.

The Secretary—Mr. President: Dr. Stillson, Treasurer, is not present, but his report is here, and I have been requested to read it for him. It is as follows:

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INDIANAPOLIS, IND., May 13, 1893.

DR. JOS. O. STILLSON, TREASURER, IN ACCOUNT WITH THE STATE MEDICAL SOCIETY, 1892–93:

Dr.

To balance on hand (see last year's report)	$335 65	
To cash from the Secretary	1,231 00	
Total		$1,566 65

Cr.

	PAGE.	RECEIPT.		
By cash to Committee on Arrangements	303	1	$134 00	
By cash to Committee on Entertainment	303	2	68 00	
By cash to E. S. Elder, Secretary's account	306	3	78 34	
By cash to W. B. Burford	306	4	11 90	
By cash to Committee on Publication	309	5	54 36	
By cash to allowance of Secretary	322	6	100 00	
By cash to Chairman Publication Committee	322	7	50 00	
By cash to Chairman Necrology Committee	322	8	5 00	
By cash for Publication of Transactions		9, 10, 11	742 88	
By cash to W. H. Robson		12	3 00	
By cash to W. H. Robson		13	2 75	
By cash to W. S. Garber, stenographer		14	83 25	
By cash to W. B. Burford		15	10 90	
Total			$1,344 38	
To balance in treasury			222 27	
Total				1,566 65

J. O. STILLSON,
Treasurer.

Dr. J. F. Hibberd, of Richmond—Mr. President: I move the report of the Treasurer be referred to the Finance Committee.

The motion was seconded.

The motion was agreed to.

The President—The report of the Committee on Publication is now in order.

Dr. A. W. Brayton, Chairman of the Committee on Publication, submitted the following report:

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COMMITTEE ON PUBLICATION.

INDIANAPOLIS, IND., May 13, 1893.

Mr. President and Members of the Indiana State Medical Society:

The Committee on Publication report that they ordered 1,475 copies of the last year's transactions to be published. Bids for the work were received from eight firms, ranging in price from ten hundred and fourteen dollars and eighty-eight cents ($1,014.88), down to seven hundred and forty-two dollars and eighty-eight cents ($742.88). The contract was let to the lowest bidder, the Sentinel Printing Company, and the work was satisfactorily done.

The volume contains four hundred and twelve pages and is the largest report ever issued by the Society. Twelve hundred and twenty-seven volumes were sent by express and mail to the members of the State Society, fifty-three copies were sent to other State medical societies and medical associations, Government and other libraries, home and foreign; forty-two copies to various medical journals, publishers and authors; forty copies to foreign medical journals and to distinguished men and honorary members of this Society; eighteen copies to foreign societies; seventeen copies to the friends of deceased members and forty-two copies to distinguished members of the profession throughout the world. The remainder were turned over to the Secretary.

The editorial work was performed with more than usual care. The committee invites advice and criticism, as their desire is to make the proceedings and record as perfect as possible.

The following is the bill of expenses incurred by the Publication Committee, 1892:

Oct 25.	Postage on 53 copies sent to medical and other bodies	$10 95
" 25.	Postage on 42 copies sent to medical journals (home)	5 65
" 25.	Postage on 40 copies sent to medical journals (foreign)	12 25
" 25.	Postage on 18 copies sent to other societies.	7 95
" 25.	Postage on 17 copies sent to deceased members' families.	2 65
" 25.	Postage on 42 copies sent to distinguished men.	7 30
" 25.	Expressage and wrapping on copies sent to societies	3 70
	Total	$50 45

Respectfully submitted,

A. W. BRAYTON, M. D.,
Chairman.

Dr. G. W. Burton, of Mitchell—Mr. President: I move that the report be accepted.

The motion carried.

The President—The next business on the program is the report of the Committee on Necrology, by Dr. J. F. Hibberd.

Dr. Hibberd submitted the report of the Committee on Necrology. (Found on page —.)

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Dr. G. W. Burton, of Mitchell—Mr. President: I move that the report of the Committee on Necrology be received.

The motion was received. (See report.)

The President—The first paper for this morning is entitled, "Coughs," by Dr. L. C. Cline, of Indianapolis. (See page 216.)

Dr. A. W. Brayton—Mr. President: Before the scientific part of our proceedings begins, I would like to speak on a question of personal and I may say universal privilege, and that is, that we take some steps to secure a quiet and orderly meeting. The fact is that the medicine vendors and instrument men monopolize the largest part of the adjacent hall and lobby and cause so much noise and disturbance as to seriously interrupt our proceedings. In previous years I have spent a good deal of time trying to secure such a degree of quiet in this room as would permit us to give attention to our scientific proceedings. It is well known that the adjacent room secures a large part of our membership, and there is a large part of it there now; and while I have no plan in view for the purpose of abating the nuisance and yet securing an exhibition of those things in which we are all directly interested, I had hoped that some plan would be devised whereby we may have quiet and order; and I suggest that the doors to the room in which the exhibits are displayed be closed during the sessions of the Society; so that members will be in either one place or the other and not be attempting to spend part of their time here and part of their time there.

Dr. J. F. Hibberd, of Richmond—Mr. President: I move that a committee of one, consisting of Dr. Brayton, take this question in hand and report at his earliest convenience what we ought to do.

The President—And to enforce the order immediately.

Dr. Hibberd—He might submit it to the Society after he has told us what we ought to do. We will help him out a little on that.

The motion was seconded.

Dr. Brayton—Mr. President: I simply spoke of the matter in good faith, without any desire to make myself disagreeable or offensive. I do not think that such a burden ought to be

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put upon any one member, for the enemy to be contended with is mighty and numerous. If the whole task is to be put upon me, I decline.

The President—I think a committee of one would be preferable to a large committee.

Dr. Brayton—Then I simply remark that I will not serve in the capacity of a policeman for the State Medical Society.

Dr. Hibberd—But you could present us a plan for remedying the trouble.

Dr. Brayton—I will consult with Dr. Hibberd on the subject.

Dr. J. R. Weist, of Richmond—Mr. President: Any effort to remedy this trouble now is too late. A number of years ago I made an effort to prevent the exhibition of instruments and medicines at our meetings, but it was not successful. As long as the Committee on Arrangements will allow them to have these exhibitions in the building where we hold our meeting, we will have this annoyance. It is too late to remedy the evil complained of, so far as this meeting of the Society is concerned.

Dr. Hibberd—Mr. President: Under the head of miscellaneous business, there was a committee appointed last year to take into consideration the suggestions of the Secretary in reference to devising some method of getting along more satisfactorily with our scientific business. It was the intention of the Secretary when he made the suggestion to have it reported on at last year's meeting, but the committee was not appointed until toward the end of the session and it was not considered at that time. That committee is now ready to report and its report is about three minutes long and concludes with a resolution on the subject. I would move that the consideration of this report and the resolution recommended by the committee be made the special order of business for three o'clock this afternoon. By that time we will have a full house.

The motion prevailed.

The President—Dr. Cline is not present and we will pass to the next paper, "Acute Lobar Pneumonitis," by J. R. Ball, M. D., of Lebanon.

Dr. Ball read his paper, which was discussed, and, on motion, it was referred to the Committee on Publication.

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The President—The next paper on the program is entitled, "Empyema," with report of cases, by Dr. J. B. Berteling, of South Bend.

Dr. Berteling read his paper.

Dr. Sexton, of Rushville—Mr. President: The paper just read is one of too much merit to be passed without discussion, and as it is within a few minutes of the adjourning hour, I move that we postpone the discussion of this paper until the convening of the Society this afternoon at two o'clock.

The motion was seconded and carried.

The Secretary—Mr. President: Here is a notice that I am requested to give:

Please announce before the close of this morning's session, that all physicians who favor the organization of a State Medical Temperance Society, are requested to meet in the parlors of the Hotel English at 1:30 o'clock sharp this afternoon.

It is signed by a number of physicians, per H. J. Hall.

The President—The Society will take notice accordingly.

Dr. J. R. Weist, of Richmond—Mr. President: The dinner hour has arrived and I move the Society be now adjourned until 2 o'clock P. M.

The motion prevailed.

AFTERNOON SESSION.

2 O'CLOCK P. M.

The President.—The Society will come to order for the afternoon session. The Secretary will please call the roll of delegates to the State Medical Society and the American Medical Association.

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DELEGATES TO THE INDIANA STATE MEDICAL SOCIETY, AMERICAN MEDICAL ASSOCIATION AND MEMBERS OF THE COMMITTEE ON NOMINATIONS OF THE INDIANA STATE MEDICAL SOCIETY:

COUNTY.	DELEGATE TO STATE SOCIETY.	DELEGATE TO AMERICAN MEDICAL ASSOCIATION.	MEMBER OF NOMINATING COMMITTEE.
ALLEN	George C. Stemen . M. F. Porter. . . . T. J. Dills.	Carl Schilling . . . W. H. Meyers. . .	George C. Stemen.
BARTHOLOMEW.	Wm. A. McCoy . . A. J. McLeod . . . J. S. Arwine. . . . K. D. Howly . . .	. . . . .	J. S. Arwine.
BENTON	Clark Cook . . . . R. E. Lee.	Jas. A. Gray . . .	Clark Cook.
BLACKFORD . .	N. D. Clouser . . . L. C. Landon, alt .	C. R. Mason, alt. . P. Drayer.	N. D. Clouser.
BOONE	J. R. Ball. . . . . W. S. Heady . . . D. H. Van Nuys. . C. D. Umberhine. . J. M. Steelsmith. . D. R. Walker . . .	. . . . .	J. R. Ball.
CARROLL . . .	W. Smith . . . . . F. G. Armstrong. .	C. Angell	W. Smith.
CASS	F. A. Busjahn . . . Wm. H. Bell . . . J. Z. Powell, alt . . J. E. Pryor, alt . .	C. L. Thomas . . .	Wm. H. Bell.
CLARK	O. P. Graham . . . W. H. Sheets. . . . J. F. Smith	T. A. Graham . . .	O. P. Graham.
CLAY	R. H. Culbertson. . O. E. Rundall . . . Fred'k Nussel, alt . J. O. Siddon, alt. . T. A. Glasgo, alt. .	Geo. W. Finley . . J. A. Modesitt. . . B. F. Holmes, alt . F. A. Day, alt. . .	Frederick Nussel.
CLINTON. . . .			
DEARBORN. . .	A. J. Bowers . . Pierre Fermier, Sr . T. E. Craig . . . . T. M. Kyle . . . . F. H. Sale, alt. . . John House, alt . .	H. H. Sutton . . . Wm. C. Henry . . . James Lamb, alt. . M. L. Bond, alt . .	J. D. Gatch.
DAVIESS	A. H. Faith . . . . F. J. Stewart. . . .	Henry Gers	C. C. McCowan.

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DELEGATES—Continued.

County.	Delegate to State Society.	Delegate to American Medical Association.	Member of Nominating Committee.
Decatur. . . .	G. S. Crawford. . .	. . . . .	G. S. Crawford.
Dekalb	Chas. S. Stewart . . F. M. Hines		
Delaware. . .	. . . . .	. . . . .	I. N. Trent.
Dubois	E. J. Kempf. . . . E. G. Lukemyer . .	E. J. Kempf	E. J. Kempf.
Elkhart . . .	W. A. Neal . . . . Chas. L. Dreese. . . Chas. W. Frink . . C. C. Bower . . . . W. E. Bowman . .	C. C. Bower . . . . Chas. S. Frink . . .	Wm. A. Neal.
Fayette. . . .	S. N. Hamilton . . R. W. Sipe	Joshua Chitwood. . V. H. Gregg. . . .	S. D. Shephard.
Floyd.	Jno. L. Stewart . . Benj. L. Mainthal . C. W. McIntyre, Jr. Jos. Boersig	R. M. Harris . . . John N. Payne . . Geo. H. Cannon, alt. Wm. L. Starr, alt. .	Jonas S. Stewart.
Fountain . . .	Geo. Rowland . . . L. P. Armstrong. .	Frank E. Sanders. .	L. P. Armstrong.
Fulton			
Franklin . . .			
Gibson.	A. R. Burton . . . W. W. Blair. . . .	A. R. Burton. . . . F. Blair.	A. R. Burton.
Grant.	William Flynn. . . J. J. Hanmore. . . Samuel Hollis . . . E. A. Hollis . . . . W. H. Hubbard . . Lewis Williams . . B. F. Ludlum . . . C. C. Cronkite . . . J. C. Knight. . . . C. V. Moore. . . .	Lewis Williams. . . B. F. Ludlum . . . S. M. Metzler . . . J. C. Knight. . . . William Flynn. . .	Wm. Flynn.
Hamilton. . .	W. B. Warford. . . Z. H. Fodrea . . . B. H. Cook	S. C. Dove. . . . . H. B. Smith. . . .	W. B. Warford.
Hancock . . .	J. W. Selman . . . S. A. Troy.	C. K. Bruner. . . . Jas. M. Larimore. .	S. A. Troy.
Hendricks. . .	. . . . .	. . . . .	C. E. Farrabee.

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DELEGATES—Continued.

County.	Delegate to State Society.	Delegate to American Medical Association.	Member of Nominating Committee.
Henry	John Rea S. Pickering	G. W. Burke	John Rea.
Huntington	Chas. W. Good. Chas. L. Wright	Chas. W. Good.	Chas. W. Good.
Howard			J. W. Wright.
Jackson			Joseph Stillwell.
Jay			G. W. Fertig.
Jennings	B. R. Hicks W. H. Richardson S. D. Adams M Nighswander	N. D. Gaddy C. W. Phillips	B. R. Hicks.
Jefferson	J. Cooperider R. M. Copeland W. A. McCoy C. C. Copeland	S. E. Hampton W. A. McCoy	R. M. Copeland.
Knox	J. L. Reeves J. H. Hensley L. B. Staley S. C. Beard L. M. Beckes P. Cany		
Kosciusko			C. W. Burket.
Lagrange	Francis P. Griffith A. G. Grubb J. F. Abbott H. M. Newman	E. G. White John Dancer J. W. Rawles, alt W. H. Short, alt	Francis P. Griffith
Lawrence	Harvey Voyles C. E. Laughlin B. J. Hon S. A. Rariden J. L. Yost G. W. Burton	A. J. McDonald J. T. Freeland	Geo. W. Burton.
Madison	J. M. Fisher J. W. Hunt Ward Cook A. E. Otto B. F. Spann N. L. Wickersham	Ward Cook Geo. F. Chittenden B. H. Perce	Jonas Stewart.
Marion	H. A. Denson W. S. Beck J. J. Garver F. C. Woodburn	J. H. Woodburn F. C. Heath O. G. Pfaff Jos. Eastman	Geo. J. Cook.

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DELEGATES—Continued.

County.	Delegate to State Society.	Delegate to American Medical Association.	Member of Nominating Committee.
	J. D. Virden	L. H. Dunning	
	G. W. Vernon	H. O. Pantzer	
	Theo. Potter	E. S. Elder	
	R. A. Hessler	L. C. Cline	
	E. C. Reyer	L. O. Carson	
	E. D. Moffet	Guido Bell	
	G. J. Cook	J. L. Thompson	
	W. M. Wright	R. F. Stone	
	Wm. Reese	W. D. Morgan	
	H. M. Lash		
	A. Blitz		
	J. T. McShane		
	S. P. Scherer		
	A. L. Wilson		
	W. N. Wishard		
	J. R. Brown		
	L. C. Kimberlin		
	G. D. Kahlo		
	H. C. Kahlo		
	G. E. Hunt		
	A. Maxwell		
	T. W. DeHaas		
	H. O. Pantzer		
	Alternates.	*Alternates.*	
	C. E. Galloway	J. T. McShane	
	W. H. Wishard	A. Blitz	
	A. W. Brayton	J. J. Garver	
	H. G. Gaylord	A. W. Brayton	
	W. E. Jeffries	W. E. Jeffries	
	P. McNabb	Theo. Potter	
	W. B. McDonald	E. D. Moffett	
	F. J. Hammond	W. B. McDonald	
	A. W. Patterson	G. D. Kalo	
		G. W. Vernon	
Marshall	T. T. Linn	T. T. Linn	
	S. W. Gould	J. H. Wilson	
	J. H. Wilson		
	A. C. Holtzendorf		J. H. Wilson.
Martin			T. A. Hays.
Miami	John W. Wood		O. P. Litzenberger.
	H. V. Passage		
	J. O. Ward		
	O. P. Litzenberger		
Monroe			W. L. Whitted.
Montgomery			T. F. Leech.

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DELEGATES—Continued.

County.	Delegate to State Society.	Delegate to American Medical Association.	Member of Nominating Committee.
Morgan			A. S. Tilford.
Noble	J. L. Gilbert. Thos. Green	Jno. W. Hays Norman Teal	J. L. Gilbert.
Orange			E. D. Laughlin.
Owen	S. R. McKelvey H. A. Fox O. F. Gray J. M. Jones	Allen Pierson Nathaniel D. Cox	S. R. McKelvey.
Parke	E. L. Vancleve		J. T. Ball.
Perry	A. T. Veneman R. H. Hutchason, alt	C. M. Brucker C. W. Ladd, alt	R. T. Veneman.
Pike	A. R. Byers J. P. Ward J. T. Kime T. W. Basinger E. S. Imel W. M. Hunter	T. W. Basinger A. R. Byers J. P. Ward, alt W. H. Link, alt	A. R. Byers.
Posey	D. C. Ramsey	C. Hicks J. B. Wilson	D. C. Ramsey.
Pulaski			
Putnam	W. H. Terrell T. Hunt. F. H. Lammas. E. Hawkins	G. C. Smythe E. Hawkins	W. H. Terrell.
Randolph	H. P. Franks C. M. Kelley J. H. Moroney. J. J. Evans	L. N. Davis J. S. Blair. Chas. McNaull, alt. C. M. Kelly, alt	
Ripley			
Rush	John Moffett John Arnold. S. C. Thomas Wm. A. Pugh	J. C. Sexton Wm. A. Pugh	Wm. A. Pugh.
Shelby	Jos. Bowlby E. W. Leech E. S. Strickler H. M. Connelly	Samuel Kennedy. H. M. Connelly	E. W. Leech.
Steuben	C. M. Dolph. T. F. Wood H. D. Wood, F. B. Dunnigan	T. F. Wood C. M. Dolph.	H. D. Wood.

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DELEGATES—Continued.

County.	Delegate to State Society.	Delegate to American Medical Association.	Member of Nominating Committee.
St. Joseph. . .	A. F. Schafer C. M. Butterworth . C. A. Daugherty . . J. B. Berteling, alt. H. T. Montgom'y, alt. J. W. Hill, alt. .	J. B. Berteling. . . J. B. Greene. . . . W. A. R. Wickham, alt . . . . . . M. Jay, alt	A. F. Schafer.
Tippecanoe . .	W. S. Campbell . . W. S. Walker . . J. F. Simison . . . G. K. Throckmorton	W. H. Peters . . . R. B. Wetherill . .	W. S. Campbell.
Tipton	H. G. Read . . . . C. S. Goar. . . . . A. B. Pitzer . . . . N. W. Doan, alt . D. P. Rubush, alt . M. L. Ploughe, alt.	. . . . .	M. D. Ploughe.
Vanderburgh.	Edwin Walker. . . C G. R. Moutoux . C. Agnes McMahan. Jos. Jacobsohn. . . Jno. E. Owen . . . Chas. Knapp . . . J. C. McClurkin . . J. E. Sink. . . . . J. P. Worrell . . . A. T. Payne. . . .	A. M. Owen . . . . George P. Hodson . Edwin Walker. . . J. E. Sink. . . . . J. P. Worrell . . .	Edwin Walker.
Vigo	F. W. Shaley . . . L. J. Willien . L. J. Weinstein W. C. Eichelberger. Walker Schell, alt . T. C Stunkard, alt. Will E. Bell, alt. . John R. Crapo, alt. T. W. Moorehead, alt	W. C. Eichelberger.	F. W. Shaley.
Wabash. . . .	T. R. Brady. . . . E. F. Donaldson . . B. A. Hauser . . John Kantz . . . . James Wilson . . .	D. C. Shellhamer . Oren O'Neal. . . . R. F. Blount . . .	
Warrick . . .	C. J. Keegan . . . W. Wilson	C. J. Keegan . . . W. Wilson	C. J. Keegan.
Washington. .	R. J. Wilson. . . . H. B. Baker. . . . W. Spurgeon, alt. . H. C. Hobbs, alt. .	. . . . .	P. H. Baker.

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DELEGATES—Continued.

County.	Delegate to State Society.	Delegate to American Medical Association.	Member of Nominating Committee.
Wayne	James F. Hibberd . Harrison Gabel . . J. E. King . . . . G. H. Grant. . . .	Rhoda Johnson . . James F. Hibbard .	James F. Hibberd.
Wells	F. W. Garrett . . . M. N. Newman . .	J. C. Fulton. . . .	T. W. Garrett.
White	W. O. Walker . . . Wm. Spencer . . .	W. O. Walker . . .	W. O. Walker.
Whitley . . .	F. M. Magers . . . Eli Eberhard . . .	J. Wm. C. Scott . .	F. M. Magers.

The President—If there is no further miscellaneous business to come before us the first business in order this afternoon is the discussion of Dr. Berteling's paper on "Empyema."

Dr. Berteling's paper was discussed, and on motion referred to the Committee on Publication.

The President—It has been suggested by some members of the Society that there must be a limit placed upon the time that may be occupied in the reading of a single paper and the discussion upon it. Twenty minutes has been suggested as the time for the reading of the paper, and five minutes to each speaker in the discussion of it. There is no by-law controlling the matter, and it will be necessary to pass a resolution before the Chair can enforce any such limitation. It would expedite matters very much if some of these discussions were cut shorter.

Dr. Moffett, of Rush County—Mr. President, we have a standing rule limiting papers to twenty minutes.

Dr. Hibberd, of Richmond—Mr. President: There being a standing rule limiting the time to be occupied by papers, I move now that in the discussion of all papers read before the Society each speaker be limited to five minutes.

The motion prevailed.

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The President—The next paper on the program is "Surgical Treatment for the Relief of Nasal Catarrh," by Dr. L. F. Page, of Indianapolis.

Dr. Page read his paper, which was, on motion, referred to the Committee on Publication.

The President—Dr. Brayton has a patient here that he wishes to exhibit to the Society at this time. If there is no objection the Chair will permit him to do so. The Chair hears no objection and Dr. Brayton may proceed.

Dr. Brayton, of Indianapolis—Mr. President: I do not wish to take the time of the Society, but I have this notable case of keloid, and it is so uncommon to find it appear in early life without any history of wounds or burns that I thought it would not be uninteresting. There are excessive keloidal growths in nearly all parts of the body, noticeably where the ears were punctured some twenty-three or twenty-four years ago, and also a band about the chest where the corset had irritated the skin, and at some other parts of the body. This woman came to my office this morning and desired me to remove some of these growths. One on the left ear has a small attachment; it is painful and very unsightly, and justifies removal. We know how subject this race is to keloid. We are acquainted with it following burns and wounds in white people. This is a very marked case because there are seven or eight masses of it on her person, of which the one above the ear is the mast marked and painful.

Dr. J. F. Hibberd, of Richmond—Mr. President: I would like to inquire, is it always started by some traumatic cause?

Dr. Brayton—I think so; sometimes the growth comes from very trivial wounds, scratches or slight cuts. The case may be examined in the ante-room by any interested in it. The growths upon her person weigh several pounds. The mass attached to the lobe of her ear is unsightly, and the weight is a burden to her; the external ear is pulled out and injured by it; the skin between the keloid mass and the cheek becomes eczematous and offensive I shall remove it; it may not grow again, and, in any case, the growth is slow.

The President—The next paper is "Hip Joint Amputation," by Dr. Smith, of Brazil.

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Dr. Smith read his paper, which was discussed, and, on motion, referred to the Committee on Publication.

The President—The time has now arrived for taking up the special order of business, which was the recommendation of the Secretary concerning the work of the Society.

Dr. Hibberd, of Richmond—Mr. President: This is the report of the committee on the recommendations contained in the Secretary's report last year:

REPORT OF COMMITTEE ON SECRETARY'S RECOMMENDATIONS.

MR. PRESIDENT:

Your Committee on Recommendations in Secretary Elder's last annual report, appointed near the close of the last session of this Society, begs leave to submit as follows: Secretary Elder's recommendations related to the need of a rearrangement of business during our annual sessions that would afford better opportunity for more satisfactory consideration of the scientific business of the session. In illustration he stated that "The number of papers annually offered has been more than sufficient to consume the allotted time, and the discussions have been unsatisfactory on account of the limit. This year we have thirty-five papers on the program. These thirty-five papers and the discussions thereon have been allowed twelve hours and forty minutes, an average of less than twenty-two minutes to a paper. We all know that justice can not be done such subjects in so brief a time."

Your committee quite agree with Secretary Elder in this statement, and with him find it easier to recognize the difficulty than to determine practical measures of relief. His suggestion of change indicated two lines, either of which might answer: (1) To divide the Society into two sections, a medical and a surgical section, holding separate meetings, in which all scientific business should be disposed of, and (2) a more rigid scrutiny of papers submitted to the Society—presumably by the Committee of Arrangements. He admits, however, that serious objections can be raised to each of these plans, and if either of them be adopted it should be after mature consideration and approximately near a unanimous expression of approval by the Society. Your committee deems it beyond hope that the Committee of Arrangements could be brought to rigidly scrutinize the papers submitted to it for arrangement on the program and exclude such as it might think the least servicable to the Society. If such an act were done with the best intentions, with the soundest judgment, with the most erudite criticism and for the best interests of the Society, it would not fail to raise such a storm about the heads of the committee that its courage would succumb and the plan would be abandoned. In past years this Society has tried to have its Committee on Publication edit its proceedings, curtail the prolix papers, straighten and polish the irregular and crude, and deny publication to the unworthy, but such efforts have not succeeded; the committee has always declined to risk the harsh criticism sure to follow the exercise of such discretion. Much less, then, could it

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be hoped the Committee of Arrangements would assume the burden of a thorough and judicial examination of the papers submitted to it and shoulder the responsibility of determining which of them should go upon the program and which into the waste basket. Furthermore, it is the information of your committee that of the papers annually read to this Society the greater number are not seen by the Committee of Arrangements, the titles only being sent to the committee for the program; beyond this the authors do not obey the by-laws requiring all papers to be in the hands of the Committee of Arrangements twenty days before the meeting of the Society.

Secretary Elder's alternate proposition was to divide this Society into a medical section and a surgical section for the consideration of its scientific business, which shall hold synchronous meetings, each section taking charge of such papers as may be assigned to it by request of their respective authors, or the judgment of the Committee of arrangements.

This method of solving the problem before us has some merit, but, in the estimation of your committee, the obvious objections to it outweigh the advantages. However, as no way presents itself for bettering the present mode of conducting the Society's business, it will, perhaps, be proper to submit this plan of sections for the consideration of the Society. Its adoption would involve a division of the time of the annual meeting approximately like this: A general session of the Society to be held on the morning of the first day to dispose of the preliminary business, as in the present, and adjourn; then the two sections meet at once, in separate rooms provided by the Committee of Arrangements, and proceed according to their own order, until the evening meeting, to hear the President's address. The second day's session to open with a brief general session of the Society, followed by section meetings, until the hour fixed for adjournment of the Society, at which time a final general session should be held, to appoint committees and transact such other business as may be needed to fitly close the service of the annual convocation.

For testing the sense of the Society in this behalf, your committee submits a resolution appended.

Respectfully submitted,

JAMES F. HIBBERD,
C. A. DAUGHERTY,
Committee.

Indianapolis, May 11, 1893.

Dr. Brayton, of Indianapolis—Mr. President: I second the resolution.

Dr. J. R. Weist, of Richmond—Mr. President: I fully sympathize with the gentlemen who are proposing to better our methods of conducting business, but I do not believe that the division of our Association into a surgical and medical section, or any other number of sections, will best serve its interests. I would like to suggest a plan that I have had some experience

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with in other associations, notably, the American Surgical Association. That society had the experience of finding a larger number of papers every year than they could discuss, or even hear read, and they adopted the plan of appointing what they called the business committee, composed of three members of the society; the President and Secretary are *ex officio* members. It is the business of this committee every year to select a certain number of subjects, and in our association the number is limited to six, and we have a three days' session. This committee has meetings and carefully considers the questions that are likely to be of general interest to the part of the profession represented. In this case both the medical gentlemen and those surgically inclined should be considered. This committee does its work carefully, selects the subjects, and then appoints certain gentlemen to write the paper and a certain number of other gentlemen who shall lead in the discussion. The men are selected a year in advance, and they are thoroughly prepared, of course. It strikes me that a method of this kind could be very well adopted by this Society. Four or six subjects could be selected, which would include both medical and surgical questions. It would be important to have a wise committee, that would select subjects of general interest to the profession of the State, and exercise some judgment in selecting those best fitted to present them, and then in selecting gentlemen to lead in the discussion. It should be a committee that would thoroughly do the work assigned to them. In addition to this, we might have volunteer papers, that could be read if time permitted, and then they might be referred to the Committee on Publication, to be published or not, as the committee thought proper; and we might have executive sessions, in which all the work would be done, all the business of the Society transacted, and the work in the other sessions would be limited to the work laid out by the committee. I would move, as a substitute for the resolution offered by the committee, that a business committee of five, including the President and Secretary, be appointed, whose duty it shall be to prepare the business of the Association for the next annual meeting.

The motion was seconded.

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Dr. T. L. Leech, of Crawfordsville—Mr. President: There are certainly very serious objections to that plan. If these meetings are for any purpose whatever, it is to encourage young men, and how this committee is going to ferret out and appoint young men to come here and read papers, I do not know. I think the resolution for which Dr. Weist's motion is offered as a substitute might be improved by having a committee, with discretion in the matter, and only have the rule prevail when the papers exceeded a certain number. I think this matter is of so much importance that it ought not to be acted upon by the Society without time for thought.

Dr. G. V. Woollen, of Indianapolis—Mr. President: I presume as I am not a delegate I have no right to enter into this discussion. I only rise because some experience I have had in this Society, and in other societies, may have a bearing on this matter that is of interest to all of us. Now, the plan that Dr. Weist suggests will do very well for experts, but for the general profession of this State, which we are here representing, I very greatly doubt its advisibility. I am satisfied that the plan we are now operating upon is a good one, and amply sufficient to correct every evil in the way suggested, if we have one, and that is, a committee that has nerve. This is the first meeting of the Society since the death of our lamented brother, Dr. Lomax, of Marion, and I can not help but express my very great regrets and the loss of the Society in his death. With him I endured an ordeal in the organization of this Society such as few men experience. We had the active disapprobation and the active opposition of some of the very best men in this Society. It took nerve—as the Doctor, if he were alive to day, could testify—it took nerve and fighting qualities to carry it through. Our worthy Secretary, Dr. Elder, who is looking at me, was one who led the band in fighting us. He did it royally, but in spite of him we carried the day, and we have at this moment one of the largest medical societies in the world, and one of the best. What we want now is men of nerve, and if a doctor comes up here to read a paper that is not worth the hearing of this Society he should be cut off, no matter what part of the State he comes from. Let it make no difference whether the paper

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comes from a very old man, an ex-President of this Society, or if it comes from a very young man who has just graduated from a medical college. No one has a right to intrude upon this Society with a paper that is not worth listening to; and when we have a committee, backed by this Society, that will throw out the trashy papers that encumber us every year, then we will have no difficulty. All we want to do is to appoint on the committee men who have the nerve to do the work, and then back them up; and if anybody comes up here with a complaint because their paper was not permitted to be read, put them down. Then we will be all right. But if we go and divide our organization with a surgical society, why I am just as much interested in surgical questions as I am in medical questions, and there will be a paper that I want to hear on some medical question and a paper that I want to hear on some surgical question, being read at the same hour, so that I can not hear them both, just as it is in the American Medical Association. We want to hear all these papers; we want all our members to be heard. But we want to have these papers culled in this way. We don't want a diarrhea of papers and a constipation of thoughts.

Dr. Edwin Walker, of Evansville—Mr. President: It seems to me the Society is hardly ready for this question. As far as I am concerned myself, I do not favor the idea of dividing this Society into sections. I think this Society should be the Society of the general practitioner. I think it should be a Society where we all come together and exchange our thoughts. If there are some who are boring us we must cut them off. It seems to me the law of the Society is good enough as it is, and to end this discussion, which, it seems to me, will not be very profitable, I move, this whole matter be laid upon the table.

The motion prevailed.

The President—The next paper is entitled "Laminectomy," by H. O. Pantzer, M. D., of Indianapolis.

Dr. Pantzer read his paper, which was discussed, and, on motion, referred to the Committee on publication.

The President—Gentlemen, Dr. Eastman is present with a pathological specimen, which he desires to show the Society at this time. Will you hear him?

Consent was given.

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The President—Dr. Eastman may proceed.

Dr. Eastman, of Indianapolis—Mr. President and gentleman: I thank you very much for the opportunity of showing this specimen, and apologize for interrupting the proceedings of the Society to present it. I would not do so except for the reason that changes will take place in the tumor directly that will rob it of some particular points of interest. I have two specimens here, which I will show you. *First.* Here is a fibrous tumor of the uterus, removed yesterday. The peculiar point of interest in this case is that the ovaries were so imbedded in the tumor, low down, in connection with the broad ligaments that it was utterly impossible to remove them without leaving a very large surface denuded of its serous covering, and making it a case where the removal of the uterine appendix for fibroid tumor would have been utterly impossible. *Second.* The ovaries were loaded down with a nodular mass, so embedded in the broad ligaments, even on the side, that fixing the pedicle in the abdominal wall was absolutely impossible without submitting the patient to a very dangerous condition of things. So the Philadelphia gentleman who insists there is but one mode of removing fibroid tumors is simply to be pitied, for here is a case, which I insist, after over one hundred observations, could not have been operated upon in that way and had the patient live.

Here is another specimen I wish to show you. It lay in this way in the abdominal cavity (illustrating). This other growth, attached at the point only by the small pedicle which you see in the forceps. This tumor had died; that is to say, there is a spot of local death in it, as the result of deficient blood supply. This mass was crowded down on the posterior vaginal wall, so that passing the finger through the vagina it seemed to be entirely blocked with the mass within. In opening the abdomen we found this simple neck (indicating) holding this larger mass, this mass here, as you notice, the ovaries and appendages attached to this part which contains the uterus. You will notice this. That is why I wanted to bring the specimen this afternoon. Here is a spot as large as the back of my hand in an advanced stage of gangrene. I believe that there is pus behind it. I believe I can puncture that with

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my finger and allow this pus to pour out. Now this lady was not considered in a dangerous condition. She had a fibroid tumor in the abdomen, it is true, but the teaching that these tumors will go away with the change of life is about equal to the heresy that a foul, stinking discharge is essential to the menopause. I simply told her the old story about the old lady and the musket, the old lady telling her son that the musket was dangerous without lock, cock, stock or barrel; she knew of a man nearly put to death by the ramrod.

Now, this contused point here (indicating): I think if I dig that open you will find it pouring out foul pus, or at least a gangrenous fluid, as poisonous as anything can be. I thank you, gentlemen.

The President—The next paper on the program is "Practical Anatomy in Medicine and Surgery," by Dr. John A. Link, of Terre Haute.

Dr. Link read his paper, which was discussed, and on motion referred to the Committee on Publication.

The President—The next paper on the program is "Appendicitis," by Dr. L. H. Dunning, of Indianapolis.

Dr. Dunning read his paper, which was discussed, and on motion referred to the Committee on Publication.

The President—The next paper on the programme is entitled "Electricity in Gynecology," by A. J. Banker, M. D., of Columbus. Dr. Banker, I understand, has been called home, so we will proceed with the next paper.

Dr. Hibberd, of Richmond—Mr. President: I move we adjourn.

Dr. McCoy, of Columbus—Mr. President: Before the Society adjourns, I want to exhibit a photograph of a monstrosity. I will leave it with the Secretary.

The motion to adjourn was agreed to, and the Society adjourned till 8 o'clock P. M.

EVENING SESSION.

8 O'CLOCK P. M.

The Society was called to order by Dr. C. G. H. Smith, Vice-President. The ex-Presidents of the Society were notified to occupy seats on the platform.

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The Vice-President—The business of the evening is to listen to the annual address of the President, Dr. George H. Beasley, of Lafayette.

President Beasley read his address.

Dr. J. McLean Moulder, of Kokomo—Mr. President: I move you that the excellent paper of the President that we have just heard be referred to the Committee on Publication.

The motion was seconded.

Dr. Leech, of Crawfordsville—Mr. President: I think the first thing to do is to have a discussion of the paper. I do not suppose anybody likes to read a paper before this Society without having it noticed.

The Vice-President. It is not customary to discuss the President's address. The question is on the motion to refer the President's address to the Committee on Publication.

The motion was agreed to.

The Vice-President—If there is no further business a motion to adjourn will be in order.

On motion the Society adjourns until to-morrow, Friday, May 12, 1893, at 9 o'clock A. M.

SECOND DAY.

MORNING SESSION.

9 O'CLOCK A. M.

The Presiding Officer (Dr. Hibberd, of Richmond, in the chair)—The Society will please come to order. The President has been called home by a telegram, and the Vice-President went to his home in advance of the President, under the belief that the President would be here, and I have been asked to preside over the business this morning in order to save time. President Beasley will probably be here in the course of an hour; in the meanwhile we will proceed to business, unless some one has an objection to offer. I hear no objection, and we will proceed. The Secretary suggests that the executive session be held in advance of the first item on the program

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this morning, I understand for the purpose of allowing Dr. Gardner to make some remarks in regard to the purposes, tendencies and benefits of the Red Cross Society. As every one here knows, Dr. Gardner has taken a great deal of interest in the Red Cross Society, and given of his time and worldly goods for its benefit and advancement. With your consent, I will introduce Dr. Gardener, whom I now have the pleasure of presenting to the Society.

Dr. Gardner read his address.

The Presiding Officer—Gentlemen: You have heard Dr. Gardner's remarks on the Red Cross Society. Have you anything to say in regard to it?

The Secretary—Mr. President: I desire to offer the following as an expression of this Society:

WHEREAS, One of the members of the Indiana State Medical Society, Dr. Joseph Gardner, has, by a valuable donation to the Red Cross Society of America, conferred honor upon our Society and a blessing upon humanity and a lasting gratitude to his name and memory.

Resolved, That this Society expresses its admiration and thanks to Dr. Gardner for his munificence, and sympathize with and endorse the efforts of the Red Cross Society in its work of alleviating human suffering and conferring deserving relief to the distressed.

Mr. President: I offer that resolution and move its publication.

The motion was seconded.

The motion was agreed to and the resolution adopted.

The Secretary—Mr. President: I have a telegram from the Kentucky State Medical Society, now in session at Frankfort. It is as follows:

FRANKFORT, KY., May 12, 1893.

To Dr. E. S. Elder, Secretary of the Indiana State Medical Society:

The Kentucky State Medical Society sends greeting and best wishes for a prosperous and happy meeting.

STEELE BAILEY,
Permanent Secretary of the Kentucky State Medical Society.

Dr. Pugh, of Rush County—Mr. President: I move that the communication from the Kentucky State Medical Society be received, and that our Secretary be instructed to make a suitable response.

The motion was seconded.

The motion was agreed to.

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The Presiding Officer—The next business in order is the announcement of the Committee on Nominations.

The Secretary announced the Committee on Nominations as follows:

LIST OF THE MEMBERS OF THE NOMINATING COMMITTEE OF INDIANA STATE MEDICAL SOCIETY, 1893.

Allen County	George C. Stemen.
Bartholomew	J. S. Arwine.
Benton	Clark Cook.
Blackford	N. D Clauser.
Boone	J. R. Ball.
Carroll	W. Smith Armstrong.
Cass	Wm. H. Bell.
Clark	O. P. Graham.
Clay	Frederick Nussel.
Clinton	Charles Chittick.
Dearborn	J. D. Gatch.
Daviess	C. C. McCowan.
Decatur	G. S. Crawford.
Dekalb	D. J. S. Watts.
Delaware	I. N. Trent.
Dubois	E. J. Kempf.
Elkhart	William A. Neal.
Fayette	S. D. Shephard.
Floyd	J. I. Stewart.
Fountain	L. P. Armstrong.
Fulton	
Franklin	
Gibson	A. R. Burton.
Grant	Wm. H. Flynn.
Hamilton	W. B. Warford.
Hancock	S. A. Troy.
Hendricks	C. E. Farrabee.
Henry	John Rea.
Huntington	Charles H. Good.
Howard	J. W. Wright.
Jackson	Joseph Stillwell.
Jay	G. W. Fertic.
Jennings	B. R. Hicks.
Jefferson	R. M. Copeland.
Knox	J. L. Reme.
Kosciusko	C. W. Burket.
Lagrange	Francis P. Griffith.
Lawrence County	George W. Burton.
Madison	Jonas Stewart.
Marion	George J. Cook.
Marshall	J. H. Wilson.
Martin	T. A. Hays.
Miami	O. P. Litzenberger.
Monroe	W. L. Whitted.
Montgomery	W. J. Hurt.
Morgan	A. S. Tilford.
Noble	J. L. Gilbert.
Orange	E. D. Laughlin.
Owen	S. R. McKelvey.
Parke	
Perry	R. T. Venneman.
Pike	J. T. Kime.
Porter	
Posey	D. C. Ramsey.
Pulaski	
Putnam	W. F. Batman.
Randolph	H. P. Frank.
Ripley	
Rush	Wm. A. Pugh.
Shelby	E. W. Leech.
Steuben	H. D. Wood.
St. Joseph	A. F. Schafer.
Tippecanoe	W. S. Campbell.
Tipton	M. L. Ploughe.
Vanderburgh	Edwin Walker.
Vigo	F. W. Shaley.
Wabash	
Warrick	C. J. Keegan.
Washington	P. H. Baker.
Wayne	J. F. Hibberd.
Wells	T. W. Garrett.
White	W. O. Walker.
Whitley	F. M. Magers.

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The Presiding Officer—The paper on "Tracheotomy," by Dr. T. F. Leech, of Crawfordsville, was on the program for yesterday afternoon, but was omitted because of lack of time. We will listen to Dr. Leech's paper this morning.

Dr. Leech read his paper, which was discussed, and, on motion, it was referred to the Committee on Publication.

The Presiding Officer—Another paper passed yesterday afternoon was Dr. Banker's paper on "Electricity in Gynecology." Is the Doctor here this morning? The Doctor is absent. We will then pass to the program for this morning. The first business in order is the report on "Bacteriological Investigation," by Dr. Theodore Potter, of Indianapolis.

Dr. Potter read his report.

Dr. Brayton, of Indianapolis—Mr. President: I move the reference of this paper to the Committee on Publication, and I also move that the discussion be held in abeyance until the papers on "Diphtheria," "Cholera" and "Scarlatina," which follow on the program, have been read, and that all these papers be discussed together; and that Dr. Potter be continued as the Committee on Bacterial Investigation.

The motion was agreed to.

The Presiding Officer—The next paper on the program is "Diphtheria *v.* Membraneous Croup," by Dr. R. H. Culbertson, of Brazil. Dr. Culbertson is not present. The next paper is entitled "Cholera," by D. M. Robertson, of North Vernon. Dr. Robertson is not here. The next paper is entitled "Scarlatina," by Dr. B. R. Hicks, of North Vernon. Is Dr. Hicks present? I expect all these gentlemen are members of the Committee on Nominations and are in the adjoining room. As these papers can not be read now, we may as well proceed with the discussion of Dr. Potter's report.

Dr. Potter's report was discussed and referred to the Committee on Publication.

The Presiding Officer—The next paper to come before the Society is the paper of Dr. J. E. Virden, of Indianapolis, entitled, "Auto Infection From the Intestinal Canal."

Dr. Virden read his paper, which was discussed, and, on motion, referred to the Committee on Publication.

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The President—Dr. Beasley, resuming the chair—The next paper is entitled, "A Few Thoughts Upon the Treatment of Typhoid Fever," by Dr. K. D. Hawley, of Columbus.

Dr. Hawley read his paper, which was discussed, and, on motion, referred to the Committee on Publication.

The President—I want to apologize to some member of the association. Some doctor came to me before the adjournment yesterday evening and asked that notice should be given of a meeting of those interested in a temperance medical society to be held here this morning. In the stress of business I forgot it, and I want to apologize to that doctor now for doing so.

Dr. Laughlin—Mr. President: I was the individual and the apology is all right. The omission to give the notice did no harm from the fact that if we had had the meeting at the time, it would have interfered with the meeting here. We had a meeting yesterday at the Hotel English, where we organized, and we were mistaken in regard to the time of the meeting of the State Society this morning. If our appointment had been made, as I requested you to announce it, it would have conflicted with our meeting this morning; so that it was all right that the President did not make it. But I wish to avail myself of the opportunity, now as I am on the floor, to say that there is an appointment for a meeting this afternoon at 1:30 o'clock in the northwest room of this building, for the organization of the Indiana State Medical Temperance Association. We met at English's Hotel yesterday and organized, but there were not as many out as we expected, and it was suggested that I make this announcement here to-day.

The President—We have a regular program. The next paper is entitled, "The Early Recognition of Mental Disease," by Dr. Lash, of Indianapolis. Dr. Lash is absent.

There were three papers passed this morning, "Diphtheria *vs.* Membraneous Croup," by Dr. Culbertson; "Cholera," by Dr. Robertson, and a paper on "Scarlatina," by Dr. B. R. Hicks, of North Vernon.

Dr. C. S. Bond, of Richmond—Mr. President: I move the reference of these papers to the Committee on Publication without reading.

The motion was seconded and carried.

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The President—The next paper is entitled, "Fractures of the Skull with Injuries to the Brain," by Dr. C. S. Arthur, of Portland.

Dr. Arthur read his paper, which was discussed, and, on motion, referred to the Committee on Publication.

The President—Dr. Lash is now present and we will hear his paper, entitled, "The Early Recognition of Mental Diseases."

Dr. Lash read his paper, which was, on motion, referred to the Committee on Publication.

On motion the Society adjourned till 2 o'clock P. M.

AFTERNOON SESSION.

2 O'CLOCK P. M.

The President—The Society will please come to order. The first business on the program is the report of the Committee on Nominations.

The Secretary submitted the following report from the Committee on Nominations:

President—C. A. Daugherty, South Bend.
Vice-President—T. F. Leech, Montgomery Co.
Secretary—E. S. Elder.
Assistant Secretary—N. N. Shipman.
Treasurer—J. O. Stillson.
Next meeting to be held at Indianapolis, May 17 and 18, 1894.

Dr. F. C. Woodburn—Mr. President: I move the report of the Committee on Nominations be received and adopted.

The motion was seconded and carried.

The Secretary—Mr. President: The Committee on Finance submitted the following report:

MR. PRESIDENT:

Your Committee on Finance begs leave to submit the following upon the reports of Secretary and Treasurer. After having examined their reports, we found them correct.

We would recommend that the bill of the chairman of the Committee of Arrangements, for expense incurred, be allowed.

We also recommend the allowance of one hundred dollars per annum to the Secretary, fifty dollars to the chairman of the Committee on Publication, and five dollars to the chairman of the Committee on Necrology.

We also recommend that the annual assessment of dues be one dollar per member.

W. F. BATMAN, Chairman.
GEORGE J. COOK.

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Dr. J. W. Hervey, of Indianapolis—Mr. President: I move that the report be received and adopted.

The motion was seconded.

The motion was agreed to.

The President—The next business for this afternoon was a paper by C. S. Bond, M. D., of Richmond, entitled "The Chemistry of Disease."

Dr. Bond read his paper, which was discussed, and, on motion, referred to the Committee on Publication.

The Secretary—Mr. President: I have a communication here from the Superintendent of the City Hospital, which, perhaps, should be read now.

INDIANAPOLIS, IND., May 12, 1893.

To the President and Members of the Indiana State Medical Society:

DEAR SIRS—You are cordially invited to visit the Indianapolis City Hospital, during your stay in the city, at any time.

Yours very truly,

C. FERGUSON,
Superintendent.

The President—The next paper is "The Heart Action," by Dr. Guido Bell, of Indianapolis.

Dr. Bell read his paper, which was discussed, and, on motion, referred to the Committee on Publication.

The President—The next paper on the program is entitled "Indigestions, with Special Reference to Cause, Prevention and Management," by C. G. R. Moutoux, M. D., of Casson.

Dr. Moutoux read his paper, which was discussed, and, on motion, referred to the Committee on Publication.

The President—The next, which was the last paper on our program for this year's meeting, is entitled "Cause and Treatment of Many Cases of Vertigo and Other Nervous Disorders," by F. C. Heath, M. D, of Indianapolis.

Dr. Heath read his paper, which was discussed, and, on motion, referred to the Committee on Publication.

The President—The time has now arrived to present to the Society the President-elect for the ensuing year.

Dr. Potter, of Indianapolis—Mr. President: If you will allow me a moment, it was said in connection with the discussion on Dr. Leech's paper on Tracheotomy this morning

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that I would present a specimen of foreign body in the lungs. I have it here now, if anybody desires to see it.

The President—I want to thank the members of this Society, one and all, for the patience with which they have borne with me in my attempt to preside over the deliberations of this session. I appreciate very much the remark that my friend, Dr. Walker, made last year, that this kind of a body governs itself, and anybody can preside over it. All you have to do is to press the button, and it goes. I think this has been a successful meeting. I think it has been beneficial—at least, to me. The papers have all been original; there has been a lack of extracts and quotations from other persons. All the papers that have been read before us at this meeting have presented new thought, and have been of that class of papers that will benefit ourselves and whoever carefully reads our transactions and discussions.

I take pleasure in introducing to you your President-elect, Dr. Daugherty, of South Bend. (Applause) That he will be a great improvement upon the outgoing administration goes without saying.

Dr. Daugherty—Mr. President and Gentlemen of the Society: I desire to express my appreciation and sincere thanks for this evidence of your confidence. The State Medical Society of Indiana is not only one of the largest, but one of the best organized and most active in the United States. To be unanimously elected President of this Society is an honor of which any man may feel justly proud. I assure you that I will use my best efforts to make the next meeting a complete success. Again I thank you. (Applause.)

The Secretary—There are five papers on the program which, for various reasons, have not been read. The authors of three of them, at least, were called away unexpectedly. Three of them have already been referred to the Committee on publication without reading. I now move that the paper entitled "Coughs," by Dr. L. C. Cline, of Indianapolis, and the paper entitled "Electricity in Gynecology," by Dr. Banker, of Columbus, be also referred to the Committee on Publication without reading.

The motion was seconded.

The motion was agreed to.

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The President—The Secretary will now announce the committees for the ensuing year.

The Secretary announced the committees as follows:

COMMITTEE ON ETHICS—Wm. Flynn, Marion, Chairman; George T. McCoy, Columbus; J. H. Wilson, Plymouth; Edwin Walker, Evansville; L. H. Dunning, Indianapolis.

COMMITTEE ON ARRANGEMENTS—F. C. Woodburn, Indianapolis, Chairman; George W. Vernon, Indianapolis; Julia Hibben, Indianapolis; George F. Keiper, Lafayette; J. C. Sexton, Rushville.

COMMITTEE ON PUBLICATION—A. W. Brayton, Chairman; A. Maxwell, T. C. Potter, J. O. Stillson, E. S. Elder.

COMMITTEE ON FINANCE—H. D. Wood, Angola, Chairman; E. D. Moffet, Indianapolis; A. L. Wilson, Indianapolis; Geo. Stemen, Ft. Wayne; J. McLean Moulder, Kokomo.

COMMITTEE ON CREDENTIALS—A. F. Schafer, South Bend, Chairman; W. A. Neal, Elkhart; J. Z. Powell, Logansport; G. V. Woollen, Indianapolis; O. P. Graham, Jeffersonville.

COMMITTEE ON NECROLOGY—J. F. Hibberd.

COMMITTEE ON BACTERIOLOGY—Theo. Potter.

COMMITTEE ON SURGERY—J. H. Oliver.

COMMITTEE ON MEDICINE—C. S. Bond.

The President—Is there any further business to come before this meeting?

The Secretary—The time for holding the next annual meeting has not been fixed.

Dr. F. C. Woodburn, of Indianapolis—Mr. President: I move that the next annual meeting of the Society be held on the third Thursday and Friday of May, in 1894.

The motion was seconded.

The motion was agreed to.

Dr. F. C. Woodburn, of Indianapolis—I move the Society adjourn.

The motion was seconded.

The motion was agreed to, and the President announced the Forty-fourth Annual Meeting of the Indiana State Medical Society adjourned.

I hereby certify that the above is a true and correct copy of the transactions of the Forty-fourth Annual Meeting of the Indiana State Medical Society.

E. S. ELDER,
Secretary.

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LIST OF MEMBERS

—OF THE—

INDIANA STATE MEDICAL SOCIETY

ALLEN COUNTY.

OFFICERS.	CENSORS.
George L. Greenwalt, Pres.	W. P. Wheery.
A. P. Buchman, Sec.	James M. Dinnen.
Miles F. Porter, Treas.	C. B. Steinen.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Bulson, A. E.	Fort Wayne.	1893.	
Brooks, W. H	Fort Wayne.	1866.	
Buchman, A. P	Fort Wayne.	1886.	
Dills, Thomas J	Fort Wayne.	1887.	
Dinnen, J. M	Fort Wayne.	1888.	
Greenawalt, G. L.	Fort Wayne.	1887.	
Greenwell, Franklin	Huntertown.	1884.	Suspended.
Hines, L. A.	Fort Wayne.	1892.	Suspended.
Havice, S. K.	Fort Wayne.	1892.	
McCaskey, G. W.	Fort Wayne.	1881.	
McCormick, T. H	Fort Wayne.	1886.	Suspended.
Myers, W. H.	Fort Wayne.	1888.	
Porter, Miles F.	Fort Wayne.	1881.	
Rosenthal, I. M	Fort Wayne.	1866.	Vice-Pres. of State Soc. in 1870.
Ruhl, W. D	Sheldon	1884.	Suspended.
Schilling, Carl.	Fort Wayne.	——	
Sivers, E. L	Fort Wayne.	1886.	Suspended.
Stemen, C. B.	Fort Wayne.	1878.	
Stemen, G. C	Fort Wayne.	1887.	
Sturgis, L. F.	Fort Wayne.	1888.	Suspended.
Sweringen, H. V.	Fort Wayne.	1878.	
Wheelock, K. K	Fort Wayne.	1881.	
Wheery, W. P	Fort Wayne.	1888.	
Wheery, Mary A.	Fort Wayne.	1888.	

Society meets on the first Tuesday of every month.

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BARTHOLOMEW COUNTY.

OEFICERS. CENSORS.

A. J. McLeod, Pres.
K. D. Hawley, Vice-Pres.
W. E. Wisner, Sec.
W. E. Wisner, Treas.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Arwine, J. S.	Columbus.	1882.	
Arwine, Lottie.	Columbus.	1891.	
Banker, A. J.	Columbus.	1882.	Suspended.
Butler, C. S	Clifford.	1882.	Suspended.
Butler, W. H.	Columbus.	1884.	
Cosby, G. O	Burnsville	1882.	Suspended.
Falk, Fred	Columbus.	1881.	
Hawley, K. D	Columbus.	1883.	
McLeod, A. J	Columbus.	1883.	
McCoy, G. T.	Columbus.	1884.	
Norton, T. D.	Petersville	1884.	
Regenas, E. S	Hope.	1884.	
Voris, S. M	Columbus.	1883.	
Wisner, Wm. E	Columbus.	1883.	

Society meets first Tuesday of each month.

BENTON COUNTY.

OFFICERS.
J. Kolb, Pres.
A. W. Wells, Sec.
J. S. Mavity, Treas.

CENSORS.
J. W. Green.
J. A. Gray.
Clark Cook.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Cook, Clark	Fowler.	1886.	
Cook, M. D	Oxford.	1890.	Removed.
Gray, James A.	Otterbein.	1878.	
Green, J. W.	Boswell.	1875.	
Kolb, Jonathan	Oxford.	1874.	
Lee, R. E	Boswell.	1893.	
Mavity, J. S.	Fowler.	1876.	
Moore, A. V.	Ambia.	1889.	
Wells, A. W.	Fowler	1874.	
Whitcomb, J. H	Boswell.	1875.	Honorary.

Society meets on the call of the President.

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BOONE COUNTY.

OFFICERS.

D. C. Scull, Pres.
T. A. Bounnell, Vice-Pres.
D. H. VanNuys, Sec.
C. H. Smith, Treas.

CENSORS.

J. R. Ball.
D. R. Walker.
J. M. Kane.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Bennington, A. M	Max	1876.	
Bounnell, Thomas A	New Brunswick	1876.	
Bounnell, M. H	Lebanon	1877.	
Bounnell, Harry	Jamestown	1893.	
Ball, J. R.	Lebanon	1892.	
Cotton, H. T.	Zionsville.	1880.	
Fitch, A. P	Lebanon	1890.	
Heady, W. S	Jamestown	1879.	
Hardy, J. S	Lebanon	1877.	
Hamilton, John A	Advance	1889.	
Hurt, Geo. K	Elizaville.	1889.	
Jones, A. B	Lebanon	1887.	
Kane, J. M	Rosston.	1884.	
McNutt, W. Y.	Zionsville.	1890.	
Miller, A. O.	Lebanon	1882.	
Porter, A. G.	Lebanon	1873.	Vice-Pres. State Soc. 1887. Dead.
Porter, John R.	Lebanon	1873.	
Rose, M. H	Thorntown	1873.	
Reagan, Jesse S	Lebanon	1885.	
Smith, C. H.	Lebanon	1874.	Vice-Pres. State Soc. 1892.
Steelsmith, J. M	Terhune	1877.	
Scull, D. C	Lebanon	1879.	
Trowbridge, Reese	Lebanon	1880.	
Umberline, C. D	Reese's Mills	1885.	
VanNuys, D. H	Lebanon	1886.	
Walker, D. R	Reese's Mills.	1878	
Winters, W. H.	White Lick	1890.	
Wrennick, George	Lebanon	1891.	
Schulse, W. H.	Lebanon	1893.	

Society meets on the first Tuesday of each month.

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BLACKFORD COUNTY.

OFFICERS.

N. D. Clouser, Pres.
C. W. Corey, Sec.
P. Drayer, Treas.

CENSORS.

M. M. Clapper.
C. Q. Shull.
C. R. Mason.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Clauser, N. D.	Hartford City	1872.	
Clapper. M. M.	Hartford City	1891.	
Corey, C. W.	Hartford City	1891.	
Davison, H. C.	Hartford City	1877.	
Landon, L. C.	Priam	1880.	
Mason, C. R.	Hartford City	1872.	
Schull, J. Q.	Montpelier	1872.	
Drayer, P.	Montpelier	1872.	
Madox, S. E.	Montpelier	1886.	

Society meets third Thursday of every month.

CARROLL COUNTY.

OFFICERS.

Chas. Angell, Sr., Pres.
W. F. Sharer, Vice-Pres.
W. Smith, Sec.

CENSORS.

F. G. Armstrong.
C. E. Angell.
W. F. Sharer.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Angell, Chas., Sr.	Pittsburg	1877.	
Angell, C. E., Jr.	Delphi	1883.	
Armstrong, F. G.	Camden	1877.	
Sharer, W. F.	Delphi	1877.	
Smith, Wickliffe	Delphi	1877.	
Snyder, L.	Lafayette	1877.	

Society meets on the first Saturday of each month.

CASS COUNTY.

OFFICERS.

C. L. Thomas, Pres.
A. J. Hermann, Vice-Pres.
J. Z. Powell, Sec.-Treas.

CENSORS.

N. W. Cady.
F. A. Busjahn.
B. C. Stevens.

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MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Bell, Wm. H.	Logansport	1873.	Pres. Ind. State Med. Soc., 1882.
Banta, H. J	Logansport	1893.	
Bradfield, B. D.	Logansport	1893.	
Busjahn, F. A	Logansport	1878.	
Cady, N. W	Logansport	1877.	
Hermann, John	Logansport	1874.	
Hermann, A. J.	Logansport	1888.	
Lybrook, W. E.	Young America	1886.	
Powell, J. Z.	Logansport	1874.	
Pryor, J. E	Logansport	1893.	
Sterrett, J. E.	Logansport	1881.	
Stevens, B. C.	Logansport	1873.	
Thomas, C. L.	Logansport	1889.	

Society meets on the last Thursday of each month.

CLARK COUNTY.

OFFICERS.

I. N. Ruddell, Pres.
J. T. Davis, Vice-Pres.
O. P. Graham, Sec.

CENSORS.

J. M. Nickols,
J. H. Walker,
Geo. W. Haymaker.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Davis, J. T	Jeffersonville	1892.	
Graham, O. P.	Jeffersonville	1891.	
Graham, T. A	Jeffersonville	1877.	
Haymaker, G. W.	Charlestown.	1882.	
Henning, R	Jeffersonville	1889.	
Hertzsch, Della	Jeffersonville	1893.	
Jones, Cad.	Charlestown.	1893.	
McClure, D	Jeffersonville	1877.	Honorary.
Nickols, J. M	Sellersburg	1893.	
Peyton, D. C.	Jeffersonville	1886.	
Reynolds, J. M	Memphis.	1885.	
Ruddell, I. N	Jeffersonville	1881.	
Sheets, W. H	Jeffersonville	1877.	
Work, W. F	Charlestown.	1887.	
Walker, J. H	Jeffersonville	1893.	
Williams, L. L.	Jeffersonville	1893.	

Society meets on the first Tuesday in April and September.

CLAY COUNTY.

OFFICERS.

Geo. W. Finley, Pres.
J. C. Gifford, Vice-Pres.
J. A. Modesitt, Sec.
Frederick Nussell, Cor. Sec.
B. F. Holmes, Treas.

CENSORS.

O. E. Rundall.
R. H. Culbertson.
R. Gantz.

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MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Benell, Charles	Prairie City	1893.	
Day, F. A.	Bowling Green	1893.	
Freed, M. A.	Clay City	1893.	
Finley, Geo. W	Harmony.	1892.	
Culbertson, R. H.	Brazil	1893.	Honorary.
Gantz, R	Saline City	1892.	
Glasgo, T. A.	Brazil	1893.	
Gifford, J. C.	Brazil	1893.	
Menough, T. F.	Brazil	1893.	
Nussel, Frederick	Brazil	1892.	
Rundall, O. E	Centre Point	1893.	
Siddons, J. O	Harmony.	1892.	
Modesitt, J. A.	Cory	1892.	
Holmes, B. F	Asherville	1892.	
Smith, J. F	Brazil	1892.	
Talbott, E. O	Bowling Green	1893.	
Veach, P. H.	Staunton	1892.	

Society meets on the second Tuesday of each month.

DAVIESS COUNTY.

OFFICERS.

J. L. Moore, Pres.
C. F. Winton, Sec. and Treas.

CENSORS.

E. D. Millis.
Henry Gers.
C. C. McCown.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Faith, A. H	Plainville.	1890.	
Gers, Henry	Washington.	1876.	
McCown, C. C.	Washington	1888.	
McPherson, S. L	Montgomery	1888.	
Millis, E. D.	Plainville.	1888.	
Moore, J. L	Washington.	1876.	
Moore, C. C.	Washington	1891.	
Scudder, J. A	Washington	1873.	
Peck, S. W	Washington	1888.	Honorary.
Scudder, C. P.	Washington	1882.	
Stewart, F. J.	Glendale	1890.	
Winton, C. F.	Washington.	1888.	
Williford, G. W	Washington.	1888.	
Williford, W. C	Washington.	1892.	

Society meets first Thursday in January, April, July and September.

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DEARBORN COUNTY.

OFFICERS.

F. H. Sale, Pres.
T. E. Craig, Vice-Pres.
Conley Heaton, Sec. and Treas.

CENSORS.

W. C. Henry.
H. H. Sutton.
J. L. Freeland.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Bond, Edwin P.	Lawrenceburg.	1844.	
Bond, Richard C	Aurora	1867.	
Bond, M. L	Aurora	1886.	
Bowers, Andrew J	Moore's Hill	1867.	
Craig, T. E.	Lawrenceburg	1867.	
Collins, Samuel H	Lawrenceburg.	1882.	
Crocker, F. L.	Manchester	1891.	Removed.
Duncan, James M.	Kyle	1892.	
Davis, J. R.	Batesville, Ripley County	1877.	Honorary.
Fermier, P.	Weisburg	1872.	
Freeland, J. L.	Weisburg	1885.	
Freeman, E. D.	Osgood, Ripley County	1884.	Honorary.
Gatch, J. D	Lawrenceburg.	1872.	Vice-President State, 1880; President State, 1890.
Henry, W. C.	Aurora	1872.	
Heaton, Conley	Aurora	1878.	
House, John.	Kyle	1887.	
Kyle, T. M.	Aurora	1869.	
Kyle, John J.	Aurora	1891.	Removed.
Lamb, James.	Aurora	1868.	
Newfort, C.	Sunman, Ripley County	1885.	Honorary.
Sutton, H. H.	Aurora	1879.	
Sale, F. H.	Aurora	1867.	
Truitt, G. W.	Guilford	1892.	Suspended (non-payment dues).
Walters, C. G	Lawrenceburg.	1867.	

Society meets last Tuesday of each month.

DECATUR COUNTY.

OFFICERS.

J. H. Alexander, Pres.
G. S. Crawford, Sec.

CENSORS.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Alexander, J. H	Greensburg	1890.	
Crawford, G. S.	Clifty	1890.	

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DEKALB COUNTY.

OFFICERS.

T. G. Matheny, Pres.
D. A. Sebring, Vice-Pres.
Chas. S. Stewart, Sec.
Vesta M. Swarts, Treas.

CENSORS.

J. B. Casebeer.
D. J. Swarts.
F. M. Hines.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Barnett, J. S.	Butler	1882.	Removed.
Bowen, M. M.	Corunna	1891.	Suspended.
Casebeer, J. B	Auburn	1882.	
Ford, J. H.	Auburn	1882.	
Hines, F. M.	Auburn	1893.	
Matheny, T. G.	Auburn	1882.	
Sebring, D. A	Auburn	1882.	
Stewart, Chas. S.	Garrett	1892.	
Swarts, D. J.	Auburn	1882.	
Swarts, Vesta M. W.	Auburn	1882.	

Society meets on the first Thursday of each month.

DELAWARE COUNTY.

OFFICERS.

S. M. Reid, Pres.
—— ———, Vice-Pres.
F. G. Jackson, Sec.
F. G. Jackson, Treas.

CENSORS.

H. M. Winans.
G. W. H. Kemper.
T. J. Bowles.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Bowles, T. J.	Muncie	1878.	
Boyden, W. J	Muncie	1892.	
Bucklin, G. W.	Muncie	1892.	
Cotterell, D. W	Muncie.	1890.	
Cowing, H. A	Muncie.	1890.	
Driscoll, W. E.	Muncie.	1886.	
Dunn, W. H.	Gaston	1893.	
Good, A. H	Selma	1882	
Green, Geo. R	Muncie.	1878.	
Harris, Jesse M	Muncie.	1892.	
Jackson, F. G	Muncie.	1889.	
Kemper, G. W. H	Muncie.	1878.	President State Medical Society.
Lemon, Anna	Muncie.	1892.	
Mansfield, T. J.	Royerton	1890.	
Reasoner, O. I.	Shideler	1890.	
Ried, S. M.	Muncie.	1889.	
Searey, S. H.	Muncie.	1891.	
Trent, I. N	Muncie.	1889.	
Williams, J. R.	Eaton	1891.	
Winans, H. M	Muncie.	1890.	

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DUBOIS COUNTY.

OFFICERS.	CENSORS.
E. A. Glezen, Pres.	Victor Knapp.
H. W. Stork, Vice-Pres.	W. R. McMahan.
B. B. Brannock, Sec.	E. J. Kempf.
C. R. Ramsbrok, Ass't Sec.	J. P. Salb.
C. W. Schwartz, Treas.	L. C. C.McAdams.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Brannock, B. B	Jasper	1891.	
DeBruler, O. E.	Ireland	1887.	Deceased.
Glezen, E. A.	Ireland	1874.	
Jenkins, J. M	Portersville	1892.	
Kempf, E. J.	Jasper	1878.	
Knapp, Victor.	Ferdinand	1889.	
Lukemyer, E. G	Huntingburgh.	1885.	
McAdams, L. C. C	Eckerty	1892.	
McMahan	Huntingburgh	1874.	
Salb, J. P	Jasper	1881.	
Stork, H. W.	Holland	1878.	
Schwartz, C. W	Huntingburgh	1874.	
Ramsbrok, C. R	Huntingburgh	1892.	
Wollenmann, A. G.	Ferdinand	1891.	

Society meets on the first Tuesday of April and first Tuesday of October.

FLOYD COUNTY.

OFFICERS.	CENSORS.
Benj. L. Maienthal, Pres.	John Sloan.
Wm. L. Starr, Vice-Pres.	Wm. A. Clapp.
Joseph A. Boersig, Sec.	Chas. Bowman.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Bowman, Chas.	New Albany	1878.	
Boersig, Joseph A	New Albany	1892.	
Clapp, Wm. A.	New Albany	1878.	
Cannon, George H	New Albany	1878.	
Cook, Chas. P	New Albany	1883.	
Davis, J. M	Greenville	1881.	
Easley, E. P.	New Albany	1878.	
Harris, Robert W	New Albany	1890.	
Maienthall, Benj. L	New Albany	1891.	
McIntyre, C. W., Sr	New Albany	1882.	
McIntyre, C. W., Jr	New Albany	1889.	
Payne, John N.	New Albany	1889.	
Sloan, John	New Albany	1878.	Vice-President State Society 1856.
Starr, Wm. L	New Albany	1881.	
Stewart, John L	New Albany	1879.	
Sigmon, E. L	New Albany	1881.	
Wilcox, Frank H.	New Albany	1890.	
Wolfe, H. S	New Albany	1891.	

Society meets on the first Thursday of each month, 10:00 A. M.

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FAYETTE COUNTY.

OFFICERS.	CENSORS.
L. D. Dillman, Pres.	Joshua Chitwood.
S. N. Hamilton, Vice-Pres.	V. H. Gregg.
Chas. Wyman, Sec.	S. D. Shepard.
Frank A. Chitwood, Treas.	R. W. Sipe.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Chitwood, George R	Connersville	1879.	Honorary.
Chitwood, Joshua	Connersville	1879.	
Chitwood, John E	Connersville	1879.	
Chitwood, Frank A.	Connersville	1888.	
Dillman, Lurton D.	Connersville	1882.	
Derbyshire, E	Bentonville	1888.	Suspended.
Ford, T. J.		1892.	
Gregg, V. H.	Connersville	1879.	
Hamilton, Samuel N	Connersville	1879.	
Horning, F. G		1892.	
Ludwick, Vernor D		1892.	
Pepper, Wm. J	Connersville	1879.	Dead.
Phares, O. P		1892.	
Shepard, S. D	Everton	1884.	
Sipe, R. W	Orange	1882.	
Smalley, John G		1892.	
Smalley, Mrs. Maud		1892.	
Wyman, Chas.	Connersville	1880.	

Society meets on the first Tuesday in January, April, July and October.

GREENE COUNTY.

OFFICERS.	CENSORS.
S. C. Cravens, Pres.	W. H. Cole.
J. B. Young, Vice-Pres.	P. M. Cook.
Thos. Wheeler, Sec.	H. R. Lowder.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Cole, W. H	Switz City	1891.	
Cook, P. M	Salisberry.	1891.	
Cravens, S. C	Bloomfield	1891.	
Lowder, H. R	Bloomfield	1891.	
Wheeler, Thos.	Bloomfield	1891.	
Young, Jacob B	Newark	1891.	

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FOUNTAIN COUNTY.

OFFICERS.	CENSORS.
P. B. Moore, Pres.	G. C. Hays.
G. S. Jones, Sec. and Treas.	J. W. Mock.
	W. C. Cole.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Armstrong, Lewis P	Newtown	1876.	
Case, Marvin T	Attica	1890.	
Cole, William C	Attica	1867.	
Fine, Ephraim M	Veedersburg	1869.	
Hays, George C	Hillsboro	1867.	
Jones, George S.	Covington	1867.	
Mock, John W.	Covington	1878.	
Moore, Patrick B.	Kingman.	1882.	
Rowland, George.	Covington	1867.	
Sanders, Frank E	Perrysville	1893.	
Shoaf, F. A	Yeddo	1893.	

Society meets on the first Thursdays of April and October, and at such other times as may be designated by the Society, or by call of the President.

FRANKLIN COUNTY.

OFFICERS.	CENSORS.
S. A. Gifford, Pres.	
R. J. Owens, Sec.	

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Averdick, H. G.	Oldenburg	1880.	Deceased.
Buckingham, Geo. R	Oldenburg	1880.	
Gifford, S. A.	Laurel	1880.	
Mann, E. R	Oldenburg	1884.	
Morgan, J. O	Springfield	1882.	
Owens, R. J	Cedar Grove	1882.	
Rayburn, J. W	Andersonville.	1888.	
Schump, Charles.	St. Peters.	1880.	

Society meets on the first Tuesday following first Monday of March, June, September and December.

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GRANT COUNTY.

OFFICERS.

I. N. Seal, Pres.
J. C. Knight, Sec.
M. T. Shively, Treas.

CENSORS.

C. C. Cronkhite.
S. S. Horne.
A. Henley.

MEMBERS.

Names.	*Residences.*	*Admitted.*	*Remarks.*
Ayers, Steven D	Marion	1850.	Honorary.
Bartley, R. W	Marion	1891.	
Borden, C. B	Marion	1891.	
Barnes, W. C	Marion	1875.	
Crumm, ——	Marion	1891.	Retired.
Conwell, L. V	Van Buren	1883.	
Corey, Lavanner	Van Buren	1862.	
Corey, L. J	Van Buren	1875.	
Cronkhite, C. C	Marion	1890.	
Cotton, C. C	Pt. Isabelle	1891.	
Daniels, G. W	Sweetser	1877.	
Davis, S. H	Marion	1887.	
Eckert, Charles	Marion	1890.	
Flynn, Wm	Marion	1876.	
Francis, W. R	Marion	1891.	
Fankboner, W. R	Marion	1891.	
Hamilton, A. A	Marion	1872.	
Henley, Alpheus	Fairmount	1866.	
Horne, Samuel S.	Jonesboro	1869.	
Hubbard, W. H	Marion	1884.	
Hollis, Samuel	Upland	1881.	
Hollis, Mrs. E. A	Upland	1890.	
Hanmore, John J	Landers	1884.	
Hunter, R. P	Marion	1891.	Removed.
Johnson, T. W.	Marion	1891.	
Kimball, Abner	Marion	1857.	
Kimball, Glen D.	Marion	1892.	Removed.
Kimball, T. C	Marion	1868.	
Knight, J. C.	Jonesboro	1882.	
Kyle, J. J.	Marion	1893.	
Ludlum, B. F	Marion	1887.	
Lomax, Wm.	Marion	1848.	Deceased.
Lord, J. L.	Marion	1882.	
Lawshe, I. F	Swayzee	1886.	
Landers, G. A	Van Buren	1887.	
Meek, J. A	Jonesboro	1850.	Retired.
Moore, C. V.	Fairmount	1878.	
McKinney, G. W.	Jonesboro	1879.	

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Names.	*Residence.*	*Admitted.*	*Remarks.*
Metzler, S. N	Jonesboro	1891.	
Nolder, S. M.	Fairmount	1892.	
Patterson, J. W	Fairmount	1890.	
Pugh, J. W	Upland	1890.	
Reasoner, H. D	Marion	1886.	Retired.
Ross, Justin	Marion	1887.	
Shively, James S.	Marion	1848.	Deceased.
Shively, M. T	Marion	1874.	
Seal, I. N	Hackelman	1878.	
Stout, O. L	Upland	1883.	
Thomas, W. B.	Fairmount	1887.	Retired.
Vance, C. E	Gas City	1892.	
Williams, Lewis	Marion	1857.	
Wharton, W. L	New Cumberland	1882.	
Williamson, P. E	Sweetser	1883.	
Whitson, E. M.	Jonesboro	1883.	
Wilson, Olive	Fairmount	1891.	

Society meets fourth Tuesday of each month.

GIBSON COUNTY.

OFFICERS.

W. W. Blair, Pres.
Geo. Strickland, Vice-Pres.
A. R. Burton, Sec.

CENSORS.

Geo. C. Kendle.
W. W. French.
R. S. Anderson.
F. H. Maxam.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Anderson, R. S	Princeton.	1893.	
Burton, A. R	Princeton.	1882.	
Blair, Frank.	Princeton.	1886.	
Blair, W. W	Princeton.	1874.	
Dorsey, Geo. L.	Princeton.	1890.	Suspended (non-payment dues).
French, W. W.	Fort Branch	1893.	
Holingsworth, M. P	Princeton.	1893.	
Kendle, Geo. C	Princeton.	1882.	
Kidd, W. G	Princeton.	1874.	Suspended (non-payment dues.)
Malone, John A	Princeton.	1874.	Dead.
Mason, G. C.	Oakland City	1880.	
Maxam, Frank H	Princeton.	1874.	
Munford, S. E	Princeton.	1874.	President State Society, 1883.
Patten, J. C	Francisco.	1874.	Suspended (non-payment dues).
Shoptaugh, S. H	Princeton.	1874.	
Strickland, George	Francisco.	1893.	

Society meets on the last Friday of each month.

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HAMILTON COUNTY.

OFFICERS.

E. C. Loehr, Pres.
P. P. Whitesell, Vice-Pres.
Z. H. Fodrea, Sec.
W. B. Graham, Treas.

CENSORS.

S. C. Dove.
M. C. Haworth.
H. B. Smith.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Axline, J. A.	Noblesville	1891.	
Benson, J. L.	Noblesville	1873.	
Corphey, J. M.	Noblesville	1889.	Honorary.
Cropper, Mrs. E. A.	Sheridan	1887.	
Dove, S. C.	Westfield	1873.	
Davenport, H. E.	Sheridan	1873.	
Fodrea, Z. H	Westfield	1890.	
Graham, W. B.	Noblesville	1873.	
Haworth, M. C.	Noblesville	1873.	
Herr, H. S.	Westfield	1885.	
Hershey, K. C.	Carmel	1878.	
Johnson, H. V.	McKinville, Ore.	1883.	Honorary.
Loehr, E. C	Noblesville	1873.	
Murphy, J. M.	Arcadia	1882.	
Parr, John N	Jolietville	1874.	
Pettijohn, O. B.	Noblesville	1874.	
Smith, H. B	Olio	1887.	
Stout, H. H	Cicero	1873.	Suspended.
Tucker, A. R	Noblesville	1873.	
Warford, W. B.	Cicero	1873.	
Whitesell, P. P	Clarksville	1873.	

Society meets on the first Tuesday of each month.

HANCOCK COUNTY.

OFFICERS.

B. H. Cook, Pres.
W. A. Justice, Vice-Pres.
Warren R. King, Sec.

CENSORS.

C. C. Pratt.
J. M. Ely.
S. A. Troy.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Alford, Chas. H	Fortville	1891.	
Black, John P	Greenfield	1891.	
Butchel, Jacob.	New Palestine	1887.	
Bruner, C. K	Greenfield	1886.	
Bruner, Mary L	Greenfield	1885.	

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Names.	*Residence.*	*Admitted.*	*Remarks.*
Comstock, Jas. A.	Greenfield	1889.	
Cook, B. H	Wilkerson	1891.	
Corey, John D	McCordsville	1891.	
Ely, Jas. M	New Palestine.	1874.	
Ely, L. C	New Palestine.	1884.	
Hervey, F. F	Fortville	1881.	
Hervey, S. W	McCordsville	1888.	
Howard, N. P., Sr	Greenfield	1874.	Vice-Pres. State Society, 1877.
Howard, N. P., Jr	Greenfield	1879.	
Justice, W. A	Eden.	1892.	
Justice, J. A	Maxwell	1892.	
Kirkhoff, C. H.	New Palestine.	1874.	
King, Warren R	Greenfield	1877.	
Larimore, Jas. M	Carrollton	1890.	
Pratt, C. C.	Willow Branch	1890.	
Troy, S. A.	Milner's Corner	1874.	
Smith, Ada	Greenfield	1892.	
Selman, J. W	Greenfield	1893.	

Society meets on the first Tuesday of each month.

HENDRICKS COUNTY.

OFFICERS.	CENSORS.
Simeon Martin, Pres.	B. Bartholomew.
C. A. White, Vice-Pres.	T. J. Adams.
C. E. Farabee, Sec. and Treas.	J. S. Ragan.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Adams, Thomas J	North Salem	1889.	Suspended.
Bartholomew, B	Danville	1876.	
Barker, Joel T	Danville	1876.	
Brill, J. H.	Pittsboro	1876.	
Brent, I. N.	Pittsboro	1890.	Dropped.
Brooks, M. W	Hazlewood	1890.	Dropped.
Carter, Amos.	Plainfield	1890.	
Davidson, A. W	Brownsburg	1880.	Suspended.
Dryden, Thomas F	Clayton.	1876.	
Depew, Marshall F	Danville	1891.	Dropped.
Farabee, C. E	Danville	1880.	
French, John S.	Pittsboro	1891.	
Green, J. N	Stilesville.	1876.	Suspended.
Grimes, W. T	Coatesville	1890.	Suspended.
Harvey, W. D	Plainfield	1891.	Suspended.
Hoadley, W. J.	Danville	1876.	
House, George H. F	Indianapolis	1880.	Suspended.

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Names.	*Residence.*	*Admitted.*	*Remarks.*
Hunt, Stephen	Coatesville	1891.	Suspended.
Jessup, Maria A	Friendswood	1891.	
Johnson, O. B	Lizton	1893.	
Kennedy, L. H.	Danville	1876.	
Lawson, Wilson T	Danville	1879.	
Martin, Simeon	North Salem	1891.	
McKitrick, Albert	Danville	1891.	Removed.
Osborn, J. A.	New Winchester.	1876.	
Parker, M. G.	Danville	1877.	
Ragan, John S.	Avon.	1879.	
Seaton, Grafton W	Cartersburg.	1891.	Removed.
Towles, Alfred N.	Danville	1891.	Removed.
White, C. A	Danville	1883.	
White, W. H.	Amo.	1889.	Suspended.

Society meets third Tuesday in January, April, July and October.

HENRY COUNTY.

OFFICERS.

John Rea, Pres.
E. S. Ferris, Sec. and Treas.

CENSORS.

S. Ferris.
T. W. Gronendyke.
S. Pickering.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Bailey, G. D.	Spiceland.	1879.	
Bailey, Rachel S.	Spiceland.	1880.	
Benedict, H	Springport	1879.	
Boor, W. A	New Castle	1879.	Honorary.
Boor, W. F	New Castle	1879.	
Burke, G. W.	New Castle	1879.	
Cochran, James	Spiceland.	1879.	
Crouse, H. M	Knightstown	1882.	
Ferris, E. S	New Castle	1885.	
Ferris, S.	New Castle	1879.	
Graf, O. O.	Knightstown	1893.	
Gronendyke, T. W	New Castle	1879.	
Holloway, O. E	Knightstown	1885.	
Hess, F. C.	Cadiz.	1882.	
Kirk, E. E	Spiceland.	1891.	
Pickering, S.	New Lisbon.	1883.	
Rea, John.	New Castle	1879.	
Winston, L. V.	Knightstown.	——	

Society meets on the second Thursday in February, April, June, August, October and December.

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HOWARD COUNTY.

OFFICERS.

J. W. Wright, Pres.
Edgar Cox, Vice-Pres.
R. D. Blount, Sec.
J. McLean Moulder, Treas.

CENSORS.

J. McLean Moulder.
R. H. Smith.
J. H. Ross.
Wm. Scott.
E. A. Armstrong.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Armstrong, E. A.	Kokomo	1864.	
Ault, M. F	Kokomo	1891.	
Bates, A. J	Kokomo	1883.	
Berst, J. H	Kokomo	1883.	
Blount, R. D	Kokomo	1891.	
Cox, Edgar	Kokomo	1890.	
Garr, J. O.	Kokomo	1884.	
Heath, W. N	Elwood	1874.	Suspended.
Johnson, I. C	Kokomo	1864.	
Kern, Lewis.	Kokomo	1858.	
Kern, Theo	Kokomo	1876.	
Martin, W. H	Kokomo	1891.	
Moulder, J. McLean	Kokomo	1875.	
Miller, Henry C	Kokomo	1886.	
Miller, L. C	Alto	1867.	
Moore, John B.	Kokomo	1878.	
McClurg, Wm. H	Kokomo	1891.	
Puckett, John L	Kokomo	1888.	
Richmond, Corydon	Kokomo	1854.	Honorary.
Ross, J. H.	Kokomo	1874.	
Ross, Robert.	Kokomo	1876.	
Scott, Wm.	Kokomo	1864.	
Scott, James T.	Greentown	1864.	
Scott, G. B	Greentown	1868.	
Smith, R. H.	Kokomo	1883.	
Thorne, J. C. F	Kokomo	1884.	
Wright, J. W	Kokomo	1886.	
West, J. F.	Kokomo	1892.	
Ross, Walter.	Kokomo	1893.	
Simmons, L. A	Kokomo	1893.	

Society meets on the second Tuesday of each month.

HUNTINGTON COUNTY.

OFFICERS.

Lagrange Severance, Pres.
Ervin Wright, Sec.
C. L. Wright, Treas.

CENSORS.

W. F. Carson.
E. W. Leyman.
H. C. Gimmell.

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MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Carson, W. F.	Roanoke	1883.	
Chafee, W. C.	Huntington	1883.	
Chenowith, George F.	Mt. Etna	1892.	
Fisher, E. S	Markle	1890.	
Fry, Chas. W	Bracken	1883.	
Good, Charles H	Warren	1883.	
Grayston, S. F. C.	Huntington	1883.	
Grayston, B. H. B	Huntington	1883.	
Grayston, C. E.	Huntington	1883.	
Gimmell, H. C.	Markle	1883.	
Leyman, E. H	Huntington	1883.	
Severance, Lagrange	Huntington	1883.	Deceased.
Wright, Charles L	Huntington	1886.	
Wright, Ervin	Huntington	1883.	

Society meets second Tuesday of each month.

JACKSON COUNTY.

OFFICERS.	CENSORS.
Joseph A. Stilwell, Pres.	M. F. Gerrish.
T. S. Galbraith, Vice-Pres.	E. P. Read.
N. N. Shipman, Sec. and Treas.	N. N. Shipman.

MEMBERS.

Name.	*Residence.*	*Admitted.*	*Remarks.*
Bain, Wm. C. A	Brownstown.	1877.	Honorary.
Burnes, Geo. O.	Cortland	1877.	
Charlton, Samuel H.	Seymour	1876.	President State Society 1888.
Cummings, D. J	Houston	1877.	
Cummings, H. A.	Mooney	1884.	Suspended.
Curtis, Wm. H.	Pekin, China	1885.	Honorary.
Galbraith, T. S.	Seymour	1886.	
Gerrish, M. F	Seymour	1885.	
Osterman, A. G	Dudleytown	1883.	
Rains, G. W.	Jonesville.	1881.	
Reed, E. P.	Ewing	1886.	
Rodman, Wm. M.	Brownstown	1880.	
Ruddick, L	Seymour	1882.	
Shields, Jas. M	Seymour	1893.	
Shipman, N. N	Seymour	1880.	Asst. Sec. State Society 1893.
Stilwell, Joseph A	Brownstown.	1876.	Surgeon in army War Rebellion.
Whitehead, Wm. E.	Brownstown.	1880.	

Society meets on the first Thursday of March, June, October and December.

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JAY COUNTY.

OFFICERS.

C. W. Mackey, Pres.
S. G. Sims, Vice-Pres.
M. T. Jay, Sec.
C. S. Arthur, Treas.

CENSORS.

G. W. Fertich.
J. B. Garber.
Benj. F. Clevenger.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Arthur, C. S.	Portland	1881.	
Bosworth, J. M	Pennville.	1883.	
Clevenger, Benj. F.	Redkey.	1881.	
Conner, N. F	Redkey.	1882.	
Dickes, Phillip.	Greenville, Ohio.	1892.	Honorary.
Dickes, Jno. T.	Portland	1885.	
Davis, R. P	Portland	1888.	
Fertich, G. W	Dunkirk	1883.	
Gillum, S. A. D	Portland	1890.	Deceased.
Garber, J. B.	Dunkirk	1892.	
Hall, J. W	Portland	1884.	
Horn, W. C	Pennville.	1891.	
Jay, Milton T	Portland.	1889.	
Kinsey, D. S.	Portland	1882.	
Kidder, J. F.	New Mt. Pleas'nt.	1882.	
Mackey, E. W.	Portland	1883.	
Mason, Samuel.	Pennville.	1883.	
Munsey, Samuel T	New Mt. Pleas'nt.	1888.	
Miles, J. T	Bryant	1888.	
Sims, S. G.	Portland	1885.	
Shepherd, G. W	Redkey.	1881.	
Shepherd, T. S.	Portland	1889.	Honorary.
Skidmore, C. E	Boundary City	1892.	
White, J. K.	Pennville.	1891.	

Society meets on the second Friday of each alternate month, beginning with April.

JENNINGS COUNTY.

OFFICERS.

A. B. Light, Pres.
C. W. Phillips, Vice-Pres.
W. H. Stemm, Sec. and Treas.

CENSORS.

W. R. Fall.
W. J. Mitchell.
C. C. Amick.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Adams, S. D	Brewersville	1892.	
Amick, C. C.	Hayden	1892.	
Case, W. W	Zenas	1892.	
Corya, F. M	Nebraska.	1892.	Removed.
Corya, P. W	Zenas.	1892.	Withdrawn.

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Names.	*Residence.*	*Admitted.*	*Remarks.*
Cox, J. G	Nebraska.	1892.	
Delcher, E. W.	Butlerville	1892.	Removed.
Fall, W. R	North Vernon	1892.	
Gaddy, N. D.	Lovett	1882.	
Gaddy, Orrville	Paris Crossing.	1884.	
Green, J. H	North Vernon	1884.	
Hicks, B. R.	North Vernon	1886.	
Kendrick, N. C	Butlerville	1886.	
Light, A. B	North Vernon.	1892.	
Mitchell, W. J.	Vernon.	1884.	
Nighswander, M	Hayden	1892.	
Phillips, C. W.	Scipio	1892.	
Roberson, D. W	Deputy.	1892.	
Richardson, N.	Vernon.	1884.	
Richardson, W. H	Vernon.	1884.	
Stemm, Wm. H	North Vernon	1886.	
Wildman, W. A	San Jacinto.	1884.	

Society meets on the first Tuesday of each month.

JEFFERSON COUNTY.

OFFICERS.	CENSORS.
J. H. Christie, Pres.	Charles Ryker.
J. Cooperider, Vice-Pres.	William Freeman.
C. C. Copeland, Sec.	Thomas Sanderson.
William A. McCoy, Treas.	

Names.	*Residence.*	*Admitted.*	*Remarks.*
Burdsal, C. A	Lancaster.	1892.	
Christie, J. H	Canaan.	1887.	
Cornett, W. T. S.	Madison	1874.	Honorary. Pres. State Soc. 1849.
Cooperider, J.	Madison	1887.	
Copeland, R. M	Bennington	1889.	
Copeland, C. C.	North Madison	1889.	
Fisher, ——.	Milton, Ky	1892.	
Freeman, William	Madison	1888.	
Hampton, S. E.	Milton, Ky	1888.	
Hewitt, G. W	Madison	1890.	
Lewis, J. F	Dupont	1889.	
McCarty, W. W	Canaan.	1889.	
McCoy, W. A	Madison	1882.	
Miles, A. A	Milton, Ky	1891.	Removed.
Ryker, Charles	Manville	1888.	
Rawlings, J. V.	Wirt	1887.	
Swan, Tyrus E.	Hanover	1889.	Suspended.
Sanderson, Thomas	Kent	1892.	Suspended.
Deputy, S. R.	Kent	1892.	

Society meets first Monday in each month.

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KOSCIUSKO COUNTY.

OFFICERS.	CENSORS.
T. J. Shackelford, Pres.	Irvin J. Bicknell.
J. E. Potter, Vice-Pres.	C. W. Burkett,
Wm. R. Schoonover, Sec.	John M. Bash.
I. B. Webber, Treas.	

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Bacon, L. B	Packerton	1886.	Removed.
Bash, John M	Warsaw	1878.	
Bicknell, Irvin J.	Milford.	1878.	
Burkett, C. W.	Warsaw	1875.	
Defrees, H. J.	Milford.	1881.	
Hazel, John B.	Claypool	1881.	Suspended.
Hatfield, W. J.	North Webster.	1892.	Suspended.
Harpengruer, Geo. B.	Sidney	1889.	Suspended.
Johnson, E. E.	Leesburg	1889.	
King, O. H	Pierceton.	1881.	
Long, Chas. R.	Pierceton.	1881.	
Moodey, Thos. F.	Pierceton.	1882.	
Pearman, F. M.	Palestine	1888.	
Potter, J. E	Milford.	1892.	
Schoonover, W. R.	Warsaw	1889.	
Shackelford, T. J.	Warsaw	1881.	
Webber, I. B	Warsaw	1875.	
White, R. P.	Warsaw	1886.	

KNOX COUNTY.

OFFICERS.	CENSORS.
P. Cany, Pres.	L. B. Staley.
W. H. Davenport, Sec.	W. R. Jones.
J. H. Hensly, Treas.	Royse Davis.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Beard, S. C	Vincennes	1885.	
Beckes, L. M	Vincennes	1888.	
Bever, J. C	Vincennes	1875.	
Cany, P.	Vincennes	1892.	
Davenport, W. H.	Vincennes	1888.	
Davis, Royse.	Deckers	1878.	
Grigsby, Wm. B	Oaktown	1882.	
Hensly, J. H	Vincennes	1881.	
Jones, W. R.	Bicknell	1892.	
Merritt, J. N	Oaktown	——	Suspended.
Reeves, J. L.	Edwardsport	1888.	
Swartzel, J. A	Vincennes	1887.	
Staley, L. B	Bicknell	1885.	
Trout, Robert E	Oaktown	——	Suspended.

Society meets on the second Tuesday of April, July, October and January.

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LAGRANGE COUNTY.

OFFICERS.	CENSORS.
J. W. Rawles, Pres.	D. W. Dryer.
F. P. Griffith, 1st Vice-Pres.	W. H. Short.
J. J. Shrock, 2d Vice-Pres.	C. D. Goodrich.
J. L. Short, Sec.	
A. R. Wyatt, Treas.	

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Abbot, J. F	Lima	1889.	
Broughton, F. H.	Wolcottville	1884.	
Dancer, John	South Milford	1877.	
Dayton, George H	Lima	1877.	
Dryer, D. W.	Lagrange	1885.	
Goodrich, C. D.	Lima	1880.	Moved to Elkhart County.
Griffith, Francis P	Lagrange	1882.	
Grubb, A. G.	Mongo	1893.	
Hughes, William.	Lima	1877.	
Newnam, H. M	South Milford.	1880.	
Rawles, J. W	Mongo	1877.	
Short, W. H.	Lagrange	1877.	
Short, J. L.	Lagrange	1877.	
Shrock, H. W	Shipshewana	1880.	
Shrock, J. J.	Emma	1891.	
Spaulding, A. M.	Brushy Prairie	1877.	Deceased.
Vaughan, I. J	Haw Patch	1890.	
White, E. G	Lagrange	1877.	
Wyatt, A. R.	Lagrange.	1889.	

Society meets on the last Thursday of January, April, July and October.

LAWRENCE COUNTY.

OFFICERS.	CENSORS.
J. M. Phipps, Pres.	B. J. Hon.
Harvey Voyles, Vice-Pres.	S. W. Smith.
C. H. Emery, Sec.	Harvey Voyles.
W. A. Burton. Treas.	

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Bare, A. W.	Bryantsville	1862.	
Burton, G. W	Mitchell	1862.	
Burton, John	Georgia.	1853.	
Burton, W. A	Mitchell	1862.	
Butler, W. C.	Leesville	1882.	Suspended.
Ellison, W. T	Heltonville	1879.	
Emery, C. H.	Bedford	1893.	

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Names.	*Residence.*	*Admitted.*	*Remarks.*
Freeland, J. T. . . .	Bedford	1886.	
Faucett, J. H	Williams. . . .	1883.	Removed to Chicago.
Gibson, John B. . . .	Georgia.	1885.	Suspended.
Hon, B. J	Bedford.	1881.	
Kelly, John C	Mitchell	1882.	
Larkin, J. B.	Mitchell	1862.	
Laughlin, C. E. . . .	Mitchell	1890.	
Mitchell, E. E. . . .	Avoca	1888.	Suspended.
McDonald, A. J. . . .	Bedford	1882.	
Phipps, J. M.	Bedford	1876.	
Rariden, S. A	Bedford	1853.	
Rariden, C. E	Bedford	1881.	
Smith, William H . .	Leesville	1853.	
Smith, S. W	Leesville	1882.	
Voyles, Harvey . . .	Fayetteville. . .	1884.	
White, G. W	Mitchell	1875.	
Yandell, William . .	Huron	1875.	
Yost, Joseph L. W . .	Mitchell	1875.	Suspended.

Society meets first Thursday in March, June, September and December.

MARSHALL COUNTY.

OFFICERS.	CENSORS.
J. H. Wilson, Pres.	S. W. Gould.
J. T. Kendall, Vice-Pres.	T. T. Linn.
J. J. Hamilton, Sec. and Treas.	S. C. Loring.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Borton, T. A.	Plymouth. . . .	1881.	
Eidson, J. W	Bourbon	1884.	
Gould, S. W.	Argos.	1878.	
Hamilton, J. J. . .	La Paz	1880.	Removed from Plymouth.
Haas, Herold T		1893.	
Holtzendorff, A. C . .	Plymouth. . . .	1881.	
Holtzendorff, Chas . .	Plymouth . . .	1893.	Honorary till graduation.
Holtzendorff, Henry. .	Plymouth . . .	1893.	Honorary till graduation.
Johnson, Luther. . . .	Bourbon	1889.	
Kaszer, Jacob	Plymouth. . . .	1891.	
Kendall, J. T	Argos	1888.	
Leland, J. S.	Argos	1878.	
Linn, T. T.	Bourbon	1881.	
Loring, S. C	Burr Oak. . . .	1888.	
Moore, Allen.	La Paz.	1883.	
Neville, R.	Lee Garden . .	1888.	
Parks, B. W.	Bourbon	1882.	
Rea, O. A	Marmont	1880.	

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Names.	*Residence.*	*Admitted.*	*Remarks.*
Sutton, J. A	Argos	1884.	
Shaw, A. M	Tyner	1892.	
Wahl, Geo. F	Bremen.	1884.	
Wilson, J. H	Plymouth.	1878.	
Wiseman, B. W. S	Marmont.	1887.	
Younkman, A. B.	Bremen.	1880.	

Society meets on second Thursday of January, April, July and October.

MADISON COUNTY.

OFFICERS.

B. H. Perce, Pres.
H. E. Jones, Vice-Pres.
John B. Fattic, Sec.
Jonas Stewart, Treas.

CENSORS.

John Cook.
B. F. Spann.
N. L. Wickersham.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Alexander, L. E.	Pendleton.	1880.	
Armfield, Orlando	Elwood.	1891.	Suspended.
Ardery, Oscar	Anderson.	1891.	
Cook, Ward	Pendleton	1875.	
Cook, John	Pendleton	1877.	
Chittenden, Geo. F.	Anderson.	1892.	
Cox, Thomas A	Elwood.	1892.	Suspended.
Fairfield, W. J.	Anderson.	1888.	
Fattic, John B	Anderson.	1891.	
Fisher, John M	Middletown.	1891.	
Garretson, W. M.	Perkinsville.	1882.	
Harter, Jacob H	Anderson.	1879.	
Harter, Wm. P	Anderson.	1879.	
Hodges, Fred Jenner	Anderson.	1891.	
Hunt, Mason V	Anderson.	1892.	
Hunt, J. Walter.	Anderson.	1878.	
Jones, Horace E	Anderson.	1875.	
Kneale, W. W.	Anderson.	1891.	
Newlin, Edgar S.	Anderson.	1892.	Removed.
Otto, A. E.	Alexandria.	1893.	
Perce, B. H.	Anderson.	1891.	
Spann, B. F.	Anderson.	1875.	
Stewart, Jonas.	Anderson.	1875.	
Strauss, L. M	Alexandria.	1893.	
Suman, Wm.	Anderson.	1875.	
Templin, Emma L	Anderson.	1892.	Removed.
Van Metre, I. N	Florida.	1879.	
Wickersham, N. L.	Anderson.	1875.	
Williams, Chas. F	Summitville	1891.	

Society meets on the first Tuesday evening of each month.

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MARION COUNTY.

OFFICERS.

J. J. Garver, Pres.
W. N. Wishard, Vice-Pres.
F. C. Woodburn, Sec.
J. E. Virden, Asst. Sec.
G. W. Vernon, Treas.

CENSORS.

J. H. Woodburn.
E. Hadley.
G. J. Cook.
W. V. Morgan.
H. O. Pantzer.
Guido Bell.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Allen, Wesley	West Newton	1878.	
Anthony, J. R	Indianapolis	1892.	
Barnes, A. L.	Southport.	1891.	
Barnes, C. A.	Southport	1878.	
Beck, W. S	Indianapolis	1888.	
Bell, Guido	Indianapolis	1883.	
Beraner, J. M	Indianapolis	1893.	
Blitz, Adolph	Indianapolis	1888.	
Brayton, A. W.	Indianapolis	1880.	
Brennan, E. J	Indianapolis	1885.	
Brown, J. R.	Indianapolis	1891.	
Brown, B. A.	Indianapolis	1893.	
Browning, W. J	Indianapolis	1892.	
Bryan, D. C	Indianapolis	1885.	
Bryan, T. N.	Indianapolis	1875.	
Burkhardt, Louis.	Indianapolis	1893.	
Canfield, B. V	Indianapolis	1890.	
Carson, L. O.	Trader's Point.	1879.	
Carson, J. H.	Indianapolis	1893.	
Chatard, Rt. Rev. Bp.	Indianapolis	1880.	Honorary.
Castor, H. C.	Indianapolis	1890.	
Cline, L. C	Indianapolis	1886.	
Combs, G. W.	Indianapolis	1884.	
Cook, G. J.	Indianapolis	1882.	
Courtney, T. E.	Indianapolis	1892.	
Cravens, J. E	Indianapolis	1885.	
Crose, S. E.	Indianapolis	1890.	
Deitch, O. L.	Indianapolis	1892.	
Deitch, O. S	Indianapolis	1892.	
DeHaas, T. W.	Indianapolis	1892.	
Denson, H. A	Indianapolis	1890.	
Dunlap, J. M	Indianapolis	1883.	
Dunning, L. H.	Indianapolis	1890.	
Dunlavey, I. C.	Indianapolis	1891.	
Earp, S. E.	Indianapolis	1882.	
Eastman, Joseph.	Indianapolis	1875.	

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Names.	*Residence.*	*Admitted.*	*Remarks.*
Eastman, T. B. . . .	Indianapolis . .	1893.	
Edenharter, G. F. . .	Indianapolis . .	1885.	
Elder, E. S . . .	Indianapolis .	1876.	
Ferguson, F. C. . . .	Indianapolis . .	1882.	
Ferguson, C. E. . . .	Indianapolis . .	1892.	
Ferree, S. L	Indianapolis . .	1890.	
Fields, M. H.	Indianapolis .	1875.	
Fletcher, C. I	Indianapolis . .	1881.	
Fletcher, W. B. . .	Indianapolis . .	1875.	
Gabe, H. E	Indianapolis . .	1893.	
Galloway, C. E . . .	Indianapolis . .	1893.	
Garver, J. J.	Indianapolis . .	1881.	
Gaston, J. N.	Indianapolis . .	1884.	Honorary.
Gaylord, H. G	Indianapolis . .	1891.	
Geiss, J. F.	Indianapolis . .	1893.	
Hammond, F. J . . .	Indianapolis .	1893.	
Hadley, E.	Indianapolis . .	1875.	
Hayes, W. F.	Indianapolis	1890.	
Hays, F. W . .	Indianapolis . .	1881.	
Haynes, W. H. . . .	Indianapolis . .	1890.	
Heath, F. C	Indianapolis . .	1891.	
Henthorne, L. S . . .	Indianapolis . .	1878.	Suspended.
Hervey, J. W . .	Indianapolis . .	1875.	
Hessler, Robert A . .	Indianapolis . .	1892.	
Hibben, Julia . . .	Indianapolis . .	1891.	
House, G. H. F. . .	Indianapolis .	1892.	
Hunt, G. E	Indianapolis .	1892.	
Hunt, P. G. C. . . .	Indianapolis . .	1882.	
Hurty, J. N	Indianapolis . .	1882.	Honorary.
Hodges, E. F . . .	Indianapolis . .	1880.	
Hollingsworth, M. P .	Indianapolis . .	1892.	
Jameson, Henry . . .	Indianapolis . .	1875.	
Jameson, P. H. . . .	Indianapolis	1875.	
Jeffries, W. E . . .	Indianapolis . .	1875.	
Jennings, W. L . . .	Indianapolis . .	1893.	
Kahlo, G. D	Indianapolis . .	1893.	
Kahlo, H. C	Indianapolis . .	1892.	
Kimberlin, L. C . .	Indianapolis . .	1889.	
Kitchen, J. M	Indianapolis . .	1878.	
Knerr, C. B	Indianapolis . .	1892.	
Lash, H. M	Indianapolis . .	1891.	
Lambert, J. A	Indianapolis . .	1892.	
Lewis, E. R	Indianapolis . .	1884.	
Long, J. B	Indianapolis . .	1884.	
Long, R. W	Indianapolis . .	1893.	
Lukenbill, J. C . . .	Indianapolis .	1892.	
Lutherman, A. L . .	Indianapolis .	1893.	
Marsee, J. W	Indianapolis . .	1878.	

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Names.	*Residence.*	*Admitted.*	*Remarks.*
Martin, U. G	Indianapolis	1891.	
Masters, J. L	Indianapolis	1893.	
Maxwell, Allison.	Indianapolis	1878.	
Metcalf, C. N	Indianapolis	1885.	
Moffet, E. D.	Indianapolis	1888.	
Morgan, W. D	Indianapolis	1883.	
Morrison, F. A.	Indianapolis	1881.	
Morrow, J. E	W. Indianapolis.	1890.	
McDonald, W. B.	New Augusta	1891.	
McNab, Phillip	Indianapolis	1891.	
McShane, J. T.	Indianapolis	1892.	
Nash, G. W	Indianapolis	1889.	
Oliver, D. H.	Indianapolis	1875.	
Oliver, J. H.	Indianapolis	1881.	
Page, L. F.	Indianapolis	1889.	
Pantzer, H. O	Indianapolis	1882.	
Patterson, A. W	Indianapolis	1878.	
Payne, J. H.	Julietta	1887.	
Pettijohn, O. B.	Indianapolis	1882.	
Pfaff, O. G.	Indianapolis	1884.	
Potter, Theo.	Indianapolis	1889	
Ratcliffe, B	West Newton	1891	
Rees, Wm.	Indianapolis	1892.	
Reyer, E. C.	Indianapolis	1891.	
Ritter, C. L.	Indianapolis	1889.	
Rooker, J. I.	Castleton.	1880.	
Rowe, L. M.	Indianapolis	1882.	
Rudy, F. T	Indianapolis	1893.	
Ryan, W. B.	Indianapolis	1891.	
Scherer, S. P	Indianapolis	1891.	
Schafer, C. R	Indianapolis	1890.	
Sloan, G. W.	Indianapolis	1892.	Honorary.
Smith, Martha.	Indianapolis	1891.	
Smith, Mary.	Indianapolis	1888.	
Spink, Mary.	Indianapolis	1887.	
Spicer, J. W.	Indianapolis	1883.	
Stillson, J. O.	Indianapolis	1884.	
Stockton, Sarah	Indianapolis	1884.	
Stone, R. F	Indianapolis	1881.	
Storch, L. A. E	Indianapolis	1892.	
Suttcliffe, J. A.	Indianapolis	1878.	
Stearne, A. E	Indianapolis	1893.	
Taylor, J. H.	Indianapolis	1880.	
Thomas, W. H.	Indianapolis	1885.	
Thompson, W. C.	Indianapolis	1876.	
Thompson, D. A	Indianapolis	1883.	
Thompson, J. L	Indianapolis	1876.	
Tomlinson, Virginia	Indianapolis	1890.	

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Names.	*Residence.*	*Admitted.*	*Remarks.*
Todd, L. L	Indianapolis	1878.	
Vernon, G. W	Indianapolis	1886.	
Virden, J. D.	Indianapolis	1892.	
Wadsworth, A	Indianapolis	1893.	
Wagner, T. A	Indianapolis	1884.	
Walker, I. C.	Indianapolis	1878.	
Wands, Wm.	Indianapolis	1875.	
Watters, P. J	Indianapolis	1887.	
Waterman, L. D	Indianapolis	1875.	
Wishard, W. H	Indianapolis	1875.	
Wishard, W. N	Indianapolis	1893.	
Wilson, A. L	Indianapolis	1888.	
Woodburn, J. H	Indianapolis	1875.	
Woodburn, F. C.	Indianapolis	1888.	
Woolen, G. V	Indianapolis	1875.	
Wright, W. M	Indianapolis	1892.	
Wynn, F. B	Indianapolis	1893.	

Society meets on every Tuesday evening.

MARTIN COUNTY.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Hayes, T. A.	Burns City	——	

MIAMI COUNTY.

OFFICERS.	CENSORS.
John W. Moore, Pres.	Will H. Brenton.
Jared Spooner, Sec.	J. S. Kelsey.
J. O. Ward, Treas.	E. H. Gregg.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Alford, Henry	Peru	1891.	
Brenton, Will H	Peru	1872.	
Bloomfield, E. M	Peru	1872.	
Boggs, M. M.	Mary.	1889.	
Crunkleton, F. J	Bunker Hill	1893.	
Davis, George W	Miami	1889.	
Fritz, John C	Deedsville	1887.	
Graham, Bourbon R	Peru	1874.	
Gregg, E. H.	Bunker Hill	1891.	
Helm, Charles J	Peru	1889.	
Higgins, Carter B	Peru	1872.	
Kelsey, J. S.	Converse	1889.	
Litzenberger, Otto P	Converse	1889.	
Meek, James A	Bunker Hill	1872.	
Meek, J. B.	Amboy.	1890.	

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Names.	*Residence.*	*Admitted.*	*Remarks.*
McDowell, Henry P	Peru	1885.	
Maughmer, G. C.	Waupecong.	1889.	
Marsh, Simeon S.	Peru	1872.	
Malsbury, J. O.	Peru	1891.	
Moore, John W.	Mexico, Ind.	1891.	
Newell, J. W.	Denver.	1887.	
Passage, Henry V	Peru	1888.	
Peters, J. B,	Perrysburg	1890.	
Penn, Hon. Rolin	Peru	1890.	
Ramsey, Samuel G.	Peru	1890.	
Ridenour, David.	Chili.	1889.	
Smith, A. F	Waupecong.	1885.	
Spooner, Jared	Peru	1887.	
Wilson, Will T.	Bunker Hill	1872.	
Watkins, Frank H	Peru	1889.	
Ward, James O	Peru	1872.	

MONTGOMERY COUNTY.

OFFICERS.

J. F. Davidson, Pres.
W. H. Ristine, Vice-Pres.
Paul J. Barcus, Sec.
T. F. Leech, Treas.

CENSORS.

O. H. Jones.
B. F. Hutchings.
L. F. Brown.

OFFICERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Barcus, Paul J.	Crawfordsville	1893.	
Berryman, J. A	Darlington	1887.	
Brown, S. H.	Alamo	1862.	
Brown, L. F.	Alamo	1887.	
Davidson, J. F.	Yountsville.	1887.	
Detcheon, S. S.	New Richmond	1862.	
Griffith, T. J.	Crawfordsville.	1865.	
Griffith, Martha E. H.	Crawfordsville.	1881.	
Greene, H. E.	Crawfordsville.	1891.	
Hurt, W. J.	Waynetown.	1878.	Vice-President, 1885.
Hutchings, B. F.	Crawfordsville.	1881.	
Jones, O. H	Crawfordsville.	1875.	
Keeney, Henry.	Linden.	1885.	
Keegan, E. W	Crawfordsville.	1880.	
Kelso, R. D.	Waveland	1893.	
Leech, T. F	Crawfordsville.	1891.	
May, W. L.	Crawfordsville.	1862.	
Ristine, W. H.	Crawfordsville.	1880.	
Straughn, J. W.	Parkersburg	1877.	
Trembly, D. G.	Mace.	1888.	

Society meets first and third Tuesdays of each month.

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MONROE COUNTY.

OFFICERS.

John E. Harris, Pres.
John. F. Potts, Sec.
W. L. Whitted, Treas.

CENSORS.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Baker, Robert E	Harrodsburg	——	
Harris, John E.	Bloomington	——	
Lowder, L. T.	Bloomington	——	
Munson, George W.	Stanford	——	
Potts, John F	Bloomington	——	
Whitted, W. L.	Bloomington	——	
Whitted, F. F	Bloomington	——	
Weir, Robert M	Bloomington	——	
Line, W. M	Bloomington	——	
Hon, U. H.	Bloomington	——	
Holland, P. C	Bloomington	——	
Tonrin, John P.	Bloomington	——	

Society meets on the first Wednesday of each month.

MORGAN COUNTY.

OFFICERS.

Amos W. Reagan, Pres.
S. A. Tilford, Vice-Pres.
Alexander S. Tilford, Sec.
R. W. Tarleton, Treas.

CENSORS.

C. M. Lindley.
R. H. Tarleton.
Charles Seaton.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Cure, H. W	Martinsville	1880.	
Farr, U. H.	Martinsville	1878.	
Griggs, O. B	Brooklyn.	1890.	Removed to Colorado.
Hendricks, W. E.	Martinsville	1879.	
Henson, Theodore	Martinsville	1891.	
Lindley, C. M	Brooklyn.	1876.	
Reagan, Amos W.	Mooresville	1876.	
Robinson, H. C.	Martinsville	1876.	
Seaton, Charles	Martinsville	1880.	Suspended.
Sweet, Edward	Martinsville	1890.	Suspended.
Tarleton, R. H.	Martinsville	1886.	Suspended.
Tilford, Salem A.	Martinsville	1876.	
Tilford, Alex. S	Hall	1890.	
Brackney, M. F	Mooresville	1893.	

Society meets on the first Wednesday in January, April, July and October.

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NOBLE COUNTY.

OFFICERS.	CENSORS.
C. A. Seymore, Vice-Pres.	Norman Teal.
John W. Hays, Sec.	Thomas Green.
John W. Hays, Treas.	E. W. Knepper.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Carr, George W	Ligonier	1882.	
DePew, E. W	Wolf Lake	1882.	
Franks, William H.	Ligonier	1883.	
Gilbert, J. L.	Kendallville	1882.	
Green, William T	Albion	1884.	
Green, T. C	Albion	1886.	
Hays, John W	Albion	1883.	
Knepper, Edwin W.	Ligonier	1882.	
Mahoney, Francis C	Avilla	1882.	
Miller, B. E.	Albion	1891.	
Mitchell, Wm. K.	Ligonier	1886.	
Moore, N. B.	Merriam	1891.	
Shobe, Wm. R.	Ligonier	1882.	
Seymore, Calvin	Wawaka	1886.	
Trader, James L	Avilla	1882.	
Tucker, H. G	Cromwell.	1882.	
Teal, Norman	Kendallville	1882.	
Teal, George A.	Kendallville	1882.	
Lemmon, S. W	Albion	1887.	
Williams, Warren S	Kendallville	1885.	

Society meets on the first Tuesday after the first Monday in January, May and September.

OWEN COUNTY.

OFFICERS.	CENSORS.
Thomas Gantz, Pres.	J. M. Jones.
H. A. Fox, Vice-Pres.	S. R. McKelvey.
Allen Pierson, Sec.-Treas.	W. H. Rice.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Beaty, W. H.	Spencer	1892.	
Coble, Jacob.	Hartford City.	1885.	
Cox, N. D.	Spencer	1879.	
Fox, H. A.	Gosport	1893.	
Gantz, Thomas.	Freedom	1891.	
Gray, O. F.	Spencer	1883.	
Hickam, Wilford	Spencer	1884.	
Jones, J. M	Cataract	1880.	
McKelvey, S. R	Spencer	1884.	
Maddox, W. B. S	Vandalia.	1879.	
Osgood, H. G	Gosport	1892.	

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Names.	*Residence.*	*Admitted.*	*Remarks.*
Pierson, Allen.	Spencer	1879.	
Pritchard, C. A	Gosport	1888.	
Rice, W. H	Cuba.	1888.	
Smith, J. W.	Gosport	1879.	
Smith, S. E	Richmond	1884.	Supt. Hospital for Insane.
Stucky, J. M.	Gosport	1879.	
Stucky, F. V	Gosport	1884.	
Wiles, W. V.	Spencer	1879.	Deceased.
Wiles, F. M.	Indianapolis	1884.	Hospital for Insane.
Yocum, Boaz	White Hall.	1893.	

Society meets in March, June, September and December at the call of the President.

ORANGE COUNTY.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Boyd, Chas.	Paoli.	——	
Laughlin, E. D.	Orleans.	——	
Lindley, Tobin.	Paoli.	——	

PARKE COUNTY.

OFFICERS.

J. A. Goldsberry, Pres.
W. P. Darroch, Vice-Pres.
A. W. Morris, Sec.
E. L. Vancleave, Treas.

CENSORS.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Ball, J. T	Judson.	1891.	
Caplinger, Chas. A	Marshall.	1891.	Suspended.
Darrock, Wm. P.	Hollandsburgh	1893.	
Dooley, Rufus L	Armisburgh.	1891.	Suspended.
Garrigus, J. J	Tangier	1891.	Suspended.
Goldsberry, J. A.	Bloomingdale.	1891.	
Goss, Marion	Rockville.	1891.	
Gillum, W. G	Rockville.	1891.	
Hudson, B. F	Montezuma.	1891.	Suspended.
Lynch, J. Yancy.	Rosedale	1891.	
Martin, Alonzo	Bellmore.	1891.	
Morris, C. C	Rockville.	1891.	Suspended.
Morris, A. W	Rockville.	1891.	
McKey, W. H. R	Russel's Mill	1891.	
Norman, I. Jas	Parkeville	1891.	Suspended.
Pursell, W. N	Rockville.	1891.	
Rice, Harrison J.	Rockville.	1891.	Suspended.
Vancleave, E. L	Catlin	1891.	
Williamson, Wm. V	Sylvania	1891.	Suspended.

Society meets on the last Friday of each month.

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PERRY COUNTY,

OFFICERS.

C. E. Cox, Pres.
R. H. Hutchason, Vice-Pres.
Chas. M. Brucker, Sec.
C. W. Ladd, Treas.

CENSORS.

R. T. Venneman.
T. W. Speidel.
Wm. Cluthe.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Brucker, Chas. M.	Tell City	1887.	
Cluthe, Wm	Tell City	1887.	
Cox, C. E	Cannelton	1891.	
Howard, W. R.	Lily Dale.	1892.	
Hutchason, R. H.	Cannelton	1890.	
Ladd, C. W	Cannelton	1887.	
Murlchi, William H	Tell City	1893.	
Speidel, F. W	Leopold	1892.	
Venneman, R. T.	Cannelton	1889.	

Society meets on the first Monday of each month.

PIKE COUNTY.

OEFICERS.

J. T. Kime, Pres.
W. M. Hunter, Vice-Pres.
S. R. Clark, Sec.
J. W. Coleman, Treas.

CENSORS.

J. R. Adams.
A. R. Byers.
E. S. Imel.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Adams, J. R.	Petersburg	1876.	
Bassinger, T. W	Petersburg	1883.	
Bethel, W. J.	Winslow	1876.	
Byers, A. R	Petersburg	1876.	
Clark, S. R	Otwell	1891.	
Coleman, J. W.	Union	1892.	
DeTarr, David.	Winslow	1878.	
Dukate. W. S	Pond Cr'k Mills.	1891.	Honorary.
Duncan, J. B	Orlando, Fla	1879.	Removed.
Fullenweider, C. H.	Mt. Vernon.	1885.	Removed.
Gears, Henry	Washington.	1888.	Honorary.
Hatfield, B. F	Velpen.	1892.	Suspended.
Harris, R. W	Algiers.	1880.	
Hunter, W. M.	Petersburg	1892.	
Imel, E. S.	Algiers.	1892.	
Johnson, L. B. W	Otwell	1889.	
Kime, J. T	Petersburg	1889.	
Link, W. H	Petersburg	1884.	
Moore, J. L	Washington	1888.	Honorary.
Smith, J. T	Glezen	1877.	
Ward, J. P	Union	1886.	

Society meets on the second Thursday of each quarter.

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PORTER COUNTY.

OFFICERS.

T. Fravel, Pres.
G. W. Arnold, Vice-Pres.
E. A. Cory, Sec. and Treas.

CENSORS.

D. J. Loring.
J. F. McCarthy.
W. B. Blackstone.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Arnold, G. W	Wheeler	1883.	Withdrawn.
Blackstone, W. B.	Crown Point	1883.	Withdrawn and removed.
Corey, E. A	Chesterton	1889.	
Carson, J. C	Valparaiso	1883.	
Fravel, T	Westville.	1884.	
Loring, D. J	Valparaiso	1883.	
Letherman, A. P.	Valparaiso	1883.	Withdrawn.
McCarthy, J. F	Valparaiso	1883.	Withdrawn.
Noland, D. P	Kouts	1889.	Withdrawn.
Watson, J. C.	Hobart.	1882.	Withdrawn.
Yohn, W. A.	Valparaiso	1884.	Deceased.

Society meets on the first Thursday in March, June, September and December.

POSEY COUNTY.

OFFICERS.

G. W. Welborn, Pres.
Ernst Hensler, Vice-Pres.
S. H. Pearse, Sec.
G. R. Peckenpaugh, Treas.

CENSORS.

J. C. Huston.
T. W. Wilson.
C. Hicks.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Bucklin, Geo. W.	Muncie.	1879.	Removed.
Glaze, L. A	Poseyville	1886.	
Hensler, Ernst.	West Franklin	1884.	
Hicks, C	Caborns	1877.	
Holton, Wm. M	New Harmony	1877.	
Huston, J. C.	Mt. Vernon.	1887.	
Krausgrill, D	Wadesville	1879.	
Murphy, Edward.	New Harmony	1877.	
Neal, Daniel.	New Harmony	1878.	
Neal, B. E	New Harmony	1889.	
Pearse, S. H.	Mt. Vernon.	1877.	
Peckenpaugh, G. R.	Mt. Vernon.	1884.	
Ramsey, D. C	Mt. Vernon.	1881.	
Rawlings, S. O.	New Harmony	1878.	
Spencer, E. V	Mt. Vernon.	1877.	
Welborn, G. W	Stewartsville	1877.	
Wilson, J. B.	Stewartsville	1889.	
Williams, J. B.	Grafton.	1877.	
Wilson, Thomas W.	New Harmony	1888.	
Young, T. B.	Poseyville	1883.	

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PUTNAM COUNTY.

OFFICERS.

P. Mullinix, Pres.
W. H. Terrell, Vice-Pres.
E. Hawkins, Sec.
L. M. Hanna, Critic.
F. H. Lammars, Treas.

CENSORS.

F. Spurgeon.
T. Hunt.
J. F. Gillespie.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Baker, P. S	Greencastle	1880.	
Batman, W. F.	Ladoga	1883.	
Cully, J. F	Bainbridge	1882.	
Collins, C. C.	Groveland	1892.	
Curtis, Geo. L	Greencastle	1869.	
Evans, E. B	Greencastle	18[illegible]7.	
Gillespie, J. F	Reelsville	1891.	
Hanna, L. M	Greencastle	1877.	
Harris, W. C	Carpentersville	1881.	
Hawkins, E	Greencastle	1882.	
Hunt, T.	Greencastle	1891.	
Lammars, F. H	Greencastle	1891.	
Leatherman, J. R	Greencastle	1885.	
Mullinix, P	Cloverdale	1890.	
Poole, G. W	Russelville	1890.	
Preston, J. L	Cloverdale	1877.	
Smythe, G. C	Greencastle	1877.	Pres. State Society 1891.
Spurgeon, F.	Mt. Meridian	1888.	
Terrell, W. H	Fillmore	1889.	
Towey, J. T	Russelville	1890.	
Wood, N. S	Roachdale	1890.	

Society meets on the second Tuesday of January, April, July and October.

RIPLEY COUNTY.

MEMBERS.

Name.	*Residence.*	*Admitted.*	*Remarks.*
Freeman, E. D.	Osgood	1890.	

RUSH COUNTY.

OFFICERS.

Wm. N. McGee, Pres.
S. C. Thomas, Vice-Pres.
J. C. Sexton, Sec.
John Moffett, Treas.

CENSORS.

John Arnold.
John Moffett.
S. C. Thomas.

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MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Arnold, John. . . .	Rushville. . .	1876.	
Crippen, E. H . . .	Milroy	1892.	
Green, Lot.	Rushville. . .	1881.	
Hackleman, F. G . .	Rushville. . .	1882.	
Hargrove, W. S . . .	New Salem . . .	1876.	
Hobbs, O. W. . . .	Knightstown . .	1888.	Removed to Knightstown.
Inlow, J. J	Manilla	1876.	
Lowden, S. A . .	Manilla	1888.	
Moffett, John . . .	Rushville. . .	1876.	
McMahan, S. W . . .	Indianapolis . .	1879.	Removed to Indianapolis.
McGee, Omer . . .	Rushville. . .	1885.	
McGee, Wm. N . . .	Rushville. . .	1885.	
Parsons, Chas. H. . .	Rushville. . .	1878.	
Pugh, Wm. A . .	Rushville. . .	1888.	
Sexton, J. C . . .	Rushville. . .	1882.	
Smith, Wm. H. . . .	Rushville. . .	1876.	
Sparks. J. B. . . .	Carthage . . .	1886.	
Spurrier, J. H . . .	Rushville. . .	1876.	
Thomas, S. C . . .	Milroy	1878.	
Wooden, E. I . . .	Homer	1889.	

Society meets on the first Monday of every month.

RANDOLPH COUNTY.

OFFICERS.

C. C. Mills, Pres.
L. N. Davis, Vice-Pres.
J. J. Evans, Sec.
J. T. Chenoweth, Treas.

CENSORS.

C. S. Evans.
H. P. Franks.
L. N. Davis.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Abel, Oscar E . . .	Winchester . . .	1889.	
Blair, James S. . . .	Lynn.	1879.	
Berry, J. S	Spartanburg . .	1878.	
Carter, David M . . .	Modock	1887.	
Chenoweth, John T. .	Winchester. . .	1876.	
Chenoweth, N. T.	Windsor . . .	1876.	
Chenoweth, F. A. . .	Winchester. . .	1886.	Withdrawn.
Commons, Wm. . . .	Union City . . .	1877.	
Davis, L. N	Farmland . . .	1876.	
Evans, C. S	Union City . . .	1876.	
Evans, J. J . . .	Winchester. . .	1876.	
Farquhar, A. H . . .	Ridgeville . . .	1876.	
Franks, H. P . . .	Losantville. . .	1886.	
Frederick, Geo. W . .	Ridgeville . . .	1888.	

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Names.	*Residence.*	*Admitted.*	*Remarks.*
Keller, Frank G	Spartanburg	1891.	Withdrawn. Moved from county to Alexandria.
Kelley, C. M.	Winchester	1887.	
Mills, C. C	Losantville	1888.	
Moroney, J. H.	Carlos City	1887.	
Markle, Jno. E	Winchester	1876.	
McNaull, Charles	Winchester	1891.	
Nixon, Jno	Farmland	1887.	
Reynard, Granville.	Union City	1885.	
Reynard, Ed. G	Union City	1890.	
Rine, E. W	Winchester	1880.	Withdrawn. Moved to Ohio.
Rogers, A. G.	Parker	1880.	
Smith, W. G.	Winchester	1876.	Deceased.

Society meets on the second Tuesday of January, April and October.

SHELBY COUNTY.

OFFICERS.

J. M. Adams, Pres.
I. M. Inlow, Vice-Pres.
J. W. Rucker, Sec.
Samuel Kennedy, Treas.

CENSORS.

H. M. Connelly.
Thos. C. Kennedy.
E. W. Leech.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Adams, J. M.	Noah.	1888.	
Bowlby, Jos	Noah.	1888.	
Connelly, H. M	Flat Rock	1888.	
Day, Samuel C.	Shelbyville	1893.	
Drake, Morris	Shelbyville	1888.	
Furney, W. C	Morristown	1893.	
Green, J. W	Shelbyville	1888.	
Green, Will F	Shelbyville	1889.	
Hess, Milton M	Morristown	1893.	
Inlow, I. W	Blue Ridge	1888.	
Jenkins, J. R	Shelbyville	1888.	Expelled.
Jones, T. S	Shelbyville	1888.	
Kennedy, Samuel	Shelbyville	1891.	
Kennedy, Thos. C	Shelbyville	1888.	
Leech, E. W.	Shelbyville	1888.	
McFadden, W. G	Shelbyville	1888.	
Pierson, Wm. M	Fountaintown.	1893.	
Randolph, D. F	Waldron	1891.	
Rubush, T. R	London.	1888.	
Rucker, J. W	Shelbyville	1888.	
Strickler, S. S	Boggstown	1888.	
Snider, J. W.	Fairland	1888.	
Trees, I. W	Smithland	1888.	
Washburn, R. R	Waldron	1888.	
Wolf, J. G.	Morristown.	1888.	

Society meets on the second Monday in each month.

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ST. JOSEPH COUNTY.

OFFICERS.

J. W. Hill, Pres.
F. M. Sawyer, Vice-Pres.
A. F. Schafer, Sec.
C. A. Daugherty, Treas.

CENSORS.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Berteling, J. B.	South Bend.	1889.	
Brown, J. R.	Sumption Prairie	1888.	
Butterworth, C. M.	South Bend.	1890.	
Daugherty, C. A.	South Bend.	1887.	
Eastman, F. P.	South Bend.	1893.	
Fink, H. A.	South Bend.	1889.	
Greene, J. B.	Mishawauka	1887.	
Hill, J. W.	South Bend.	1888.	
Jay, M.	South Bend.	1890.	
Lyan, T. B.	South Bend.	1893.	
Mitchell, H. F.	South Bend.	1890.	
Mitchell, C. F.	South Bend.	1891.	
Montgomery, H. T.	South Bend.	1889.	
Rennoe, C. A.	South Bend.	1893.	
Sawyer, F. M.	South Bend.	1887.	
Schafer, A. F.	South Bend.	1888.	
Stockwell, S. M.	South Bend.	1889.	
Thorpe, A. L.	Mishawauka	1887.	
Wickham, W. A. R.	South Bend.	1888.	

Society meets on the last Tuesday of January, March, May, July, September and November.

STEUBEN COUNTY.

OFFICERS.

T. P. Dunnigan, Pres.
Frank Humphries, Vice-Pres.
T. F. Wood, Sec.
T. B. McNab, Treas.

CENSORS.

H. D. Wood.
J. F. Cameron.
S. N. Fuller.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Cameron, J. Frank.	Hamilton.	1881.	
Dolph, Cassius M.	Pleasant Lake.	1889.	
Bergess, Thomas E.	Ashley.	1892.	
Dunnigan, F. B.	Fremont.	1892.	
Fullen, Stephen H.	Pleasant Lake	1877.	
Goodale, Charles M.	Metz.	1885.	
Hamilton, Frank.	Hudson	1890.	
Humphries, Frank.	Angola.	1892.	

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Names.	*Residence.*	*Admitted.*	*Remarks.*
Kimmel, A. J	Hudson	1890.	
Lane, W. H	Angola.	1889.	
Leisure, Mrs. Lydia	Angola.	1893.	
McNab, T. B	Fremont	1885.	
Nichols, H. A	Flint.	1892.	
Rausburg, M. V	Pleasant Lake.	1881.	
Stanfer, E. R	Fremont	1887.	
Taylor, E. A.	York Center	1882.	
Wallace, James F	Orland.	1881.	
Waller, Wm. H	Angola.	1885.	
Williams, T. B.	Angola.	1885.	
Wood, H. D	Angola.	1863.	
Wood, T. F	Angola.	1864.	
Thomas, J. Creel.	Angola.	1893.	

Society meets on each alternate Friday.

TIPPECANOE COUNTY.

OFFICERS.

Joseph Baker, Pres.
W. H. Peters, Vice-Pres.
Geo. F. Keiper, Sec.
Geo. F. Beasley, Treas.

CENSORS.

W. S. Walker.
J. C. Webster.
W. R. Moffit.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Baker, Joseph	Lafayette.	1884.	
Barcus, Paul.	Crawfordsville.	1887.	
Beasley, Geo. F	Lafayette.	1877.	President State Society 1892.
Boyd, B. H	Lafayette.	1889.	Expelled 1892.
Campbell, W. S	West Point	1887.	
Crouse, J. H.	Dayton.	1884.	
Davidson, E. C	Lafayette.	1892.	
Gray, James A.	Otterbein.	1882.	Honorary. Suspended.
Irwin, L. M	Lafayette.	1882.	
Keiper, Geo. F.	Lafayette.	1890.	
Moffit, W. R.	West Lafayette	1880.	
O'Ferrall, R. M.	Lafayette.	1884.	Vice-President State Society 1859.
Parker, Joseph.	Colfax	1890.	Honorary. Suspended.
Peters, W. H	Lafayette.	1886.	
Rainey, H. W	Indianapolis	1883.	
Smith, J. T	Kokomo	1887.	Honorary.
Throckmorton, Geo. K.	Lafayette.	1890.	
Walker, W. S	Lafayette.	1877.	
Webster, J. C	Lafayette.	1878.	
Wetherill, R. B	Lafayette.	1887.	
Yount, S. T	Chicago, Ill.	1877.	Suspended. Vice-Pres. S. S. 1889

Society meets on the first and third Thursdays of each month.

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TIPTON COUNTY.

OFFICERS.	CENSORS.
Geo. M. Collins, Pres.	Horace G. Read.
Nathan W. Doan, Vice-Pres.	C. S. Goar.
M. L. Plughe, Sec. and Treas.	Andrew B. Pitzer.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Collins, Geo. M	Tipton	1874.	
Doan, Nathan W.	New Lancaster	1874.	
Downing, Samuel G	Hobbs	1889.	Removed to Yorktown.
Grone, Jasper M.	Tipton	1874.	
Goar, C. S.	Goldsmith	1890.	
Lowder, Wm. L	Humphries, Ky	1891.	Removed.
Pitzer, Andrew B.	Tipton	1874.	
Plughe, M. L	Goldsmith	1893.	
Rubush, David P.	Sharpsville	1875.	
Read, Horace G	Tipton	1887.	
Welchel, Thomas C.	Goldsmith	1878.	

Society meets on the first Tuesday of each month.

VIGO COUNTY.

OFFICERS.	CENSORS.
F. W. Shaley, Pres.	T. C. Stunkard.
W. R. Mattox, Vice-Pres.	J. E. Doer.
W. C. Eichelberger, Sec.	A. J. Payne.
Walker Schell, Treas.	

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Armstrong, W. P.	Terre Haute	1878.	Suspended.
Askren, C. F.	Terre Haute	1886.	Suspended.
Bell, Will E.	Terre Haute	1891.	
Brunker, J. B	Riley	1891.	
Crapo, John R.	Terre Haute	1878.	
Crapo, Geo. W.	Terre Haute	1879.	
Cooper, J. A	Terre Haute	1890.	
Cole, J. A	Terre Haute	1891.	
Cavins, R. W	Terre Haute	1891.	
Culbertson, B. H.	Brazil	1881.	Suspended.
Davis, W. S.	Terre Haute	——	Suspended.
Eichelberger, W. C.	Terre Haute	1881.	
Gustmyer, Charles	Terre Haute	1874.	
Doer, J. E.	Terre Haute	1892.	
Hood, T. C.	Dana	1884.	Suspended.
Haworth, W. W	Terre Haute	1886.	

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Names.	*Residence.*	*Admitted.*	*Remarks.*
Hunt, John S	Maxville	1890.	Suspended.
Jenkins, W. O	Terre Haute	1884.	
Larkins, E. L	Terre Haute	1882.	
Link, John E.	Terre Haute	1889.	
Mason, T. A.	Terre Haute	1892.	
McCorkle, T. H	Edwards	1886.	
Mattox, W. R	Terre Haute	1888.	
Moorehead, T. W.	Terre Haute	1878.	
Payne, A. T.	Terre Haute	1890.	
Preston, S. C.	Terre Haute	1874.	Died January 6, 1893.
Shaley, F. W.	Terre Haute	1885.	
Schell, Walker.	Terre Haute	1890.	
Smith, J. F	Brazil	1886.	Removed.
Swafford, B. F.	Terre Haute	1874.	
Spann, A. W.	Terre Haute	1880.	
Stunkard, T. C.	Terre Haute	1885.	
Weinstein, L. J.	Terre Haute	1879.	
Willien, L. J.	Terre Haute	1874.	
Wonell, J. P.	Terre Haute	1874.	
Willis, J. R	Terre Haute	1889.	Suspended.
Wyeth, Charles	Terre Haute	1892.	
Young, S. J	Terre Haute	1874.	
Zimmerman, C. F.	Terre Haute	1879.	

Society meets on the first Thursday in each month.

VANDERBURGH COUNTY.

OFFICERS.	CENSORS.
F. W. Achilles, Pres.	Richard Hartloff.
J. T. Binkley, Vice-Pres.	J. C. McClurkin.
J. H. Kerth, Sec.-Treas.	Chas. Knapp.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Achilles, F. W.	Evansville	1886.	
Bacon, C. P	Evansville	1878.	
Begley, B. W	Inglefield.	1889.	
Binkley, Jno. T	Evansville	1886.	
Bryan, Tony L.	Evansville	1886.	
Clippinger, Wilbur F.	McCutchanville.	1890.	
Compton, J. W	Evansville	1878.	
Corlew, R. M	Evansville	1886.	
Day, B. J	Evansville	1879.	Honorary.
Glover, John F	Evansville	1890.	
Hartloff, Richard.	Evansville	1886.	
Hodson, Geo.	Evansville	1886.	
Jacobsohn, Jos.	Evansville	1890.	

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Names.	*Residence.*	*Admitted.*	*Remarks.*
Kerth, J. H	Evansville	1890.	
Knapp, Chas.	Evansville	1883.	
Linthicum, E	Evansville	1878.	
McMahan, C. Agnes	Evansville	1889.	
McClurkin, J. C	Evansville	1887.	
McCoy, Pitt Y	Evansville	1886.	
Minton, J. C.	Evansville	1891.	Removed.
Montoux, C. G. R	Kasson.	1890.	
Norman, Seaton	Evansville	1890.	
Owen, A. M.	Evansville	1879.	
Owen, J. E	Evansville	1886.	
Powell, Thos. E	Evansville	1886.	
Pritchett, W. S	Evansville	1892.	
Reavis, W. J.	Evansville	1892.	Removed.
Schuyler, B. L.	Evansville	1887.	
Snyder, Katherine S	Evansville	1889.	
Varner, Geo. W	Evansville	1890.	
Vaughan, Geo. T.	Evansville	1890.	Honorary. Removed.
Walker, Edwin	Evansville	1882.	
Weever, Jno. B	Evansville	1887.	
Wertz, Tolliver	Evansville	1891.	
Witting, A. P	St. Joseph	1893.	
Worsham, Ludson	Evansville	1887.	
Young, Geo. M	Evansville	1887.	

Society meets on the second and fourth Friday of each month.

WABASH COUNTY.

OFFICERS.	CENSORS.
R. F. Blount, Pres.	E. F. Donaldson.
P. G. Moore, Vice-Pres.	P. G. Moore.
Jas. Wilson, Sec.	N. T. Hale.
L. F. Jessup Smith, Treas.	

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Ader, Henry.	Somerset	1871.	
Biggerstaff, J. T	LaGro	——	
Brady, C. C	Lincolnville	1887.	
Brady, T. R.	Wabash	1871.	
Bloomer, T. H.	LaGro	1873.	
Blount, R. F.	Wabash	1865.	
Brodbeck, Geo.	Roann	1884.	
Donaldson, E. F	Wabash	1865.	
Ford, James	Wabash	1854.	Honorary.
Ford, J. H	Wabash	1872.	

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Names.	*Residence.*	*Admitted.*	*Remarks.*
Hale, M. M	Wabash	1871.	
Hale, N. T	Wabash	1886.	
Hauser, B. A	Somerset	1893.	
Jessup, Smith L. F.	Wabash	1884.	
Kautz, John	LaGro	1873.	
King, C. H	Wabash	1890.	
Lower, M. O.	N. Manchester	1876.	
Mooney, H. C	Laketon	1876.	
Moore, P. G	Wabash	1876.	
O'Neal, Laughlin	Somerset	1859.	
O'Neal, Oren	Wabash	1892.	
Renner, M. E	Urbana.	1893.	
Shellhammer, D. C.	Puckerbrush	1890.	
Smith, A. J	Wabash	1871.	
Thompson, S. G	Wabash	——	Demised.
Wilson, James	Wabash	1890.	

Society meets on the third Thursday of each month.

WARRICK COUNTY.

OFFICERS.

W. Wilson, Pres.
D. A. DeForest, Vice-Pres.
W. A. Hewins, Sec.

CENSORS.

W. H. Mills.
N. M. Spradley.
S. L. Tyner.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
DeForest, D. A	Boonville.	1874.	
Hewins, W. A	Chandler.	1884.	
Jones, T. B	Lynnville.	1874.	
Keegan, C. J.	Canal	1874.	
Mills, W. H	Folsomville.	1884.	Moved to Boonville.
McCool, H. F	Chandler	1889.	
Scales, W. B.	Sedalia, Mo.	1874.	Honorary.
Spradley, H. M	Selvin	1892.	
Tucker, D. W	Boonville.	1889.	
Tyner, S. L	Paradise	1874.	
Wilson, W.	Yankeetown	1874.	

Society meets on the second Tuesday in March, June, September and December.

WASHINGTON COUNTY.

OFFICERS.

C. L. Paynter, Pres.
H. C. Hobbs, Vice-Pres.
H. M. Paynter, Sec.

CENSORS.

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MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Baker, I. H. B.	Pekin	——	
Bare, John R	Salem	——	
Bradshaw, ——	Beck's Mill	——	
Bright, ——	Martinsburg	——	
DeWeese, Geo	Fredericksburg	——	
Hancock, G. L.	Campbellsburg	——	
Havard, ——	Kossuth	——	
Henderson, H. D.	Salem	——	
Heron, ——	Lesterville	——	
Hobbs, Havilla	Salem	——	
Martin, R. C	Salem	——	
Mitchell, ——	Canton	——	
Murphy, Chas	Salem	——	
Oatley, ——	Philadelphia	——	
Purkhiser, ——	Salem	——	
Paynter, C. L	Salem	——	
Paynter, H. M.	Salem	——	
Paynter, L. W.	Campbellsburg	——	
Rathburn, ——	Kossuth	——	
Roberts, ——	Fredericksburg	——	
Spurgeon, ——	Kossuth	——	
Tence, ——	Livonia	——	
Tucker, Thos.	Salem	——	
Tucker, Wm	Tampico	——	
Vayles, ——	Livonia	——	
Wilson, R. W	Salem	——	
Zaring, ——	Little York.	——	

Society meets on the first Monday in each month.

WAYNE COUNTY.

OFFICERS.

E. A. Buntin, Pres.
Rhoda Johnson, Vice.-Pres.
Geo. H. Grant, Sec.
Jas. F. Hibbard, Treas.

CENSORS.

M. F. Johnston.
Sarah Jane Morrow.
Hosea Tillson.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Allen, John B	Hagerstown.	1883.	
Ballard, Nathan H	Richmond	1881.	
Bond, Chas. S	Richmond	1883.	
Buntin, E. A	Greensfork	1887.	
Ballenger, W. L	Richmond	1887.	Removed to Evanston, Ill.
Gabel, Harrison	Centreville	1887.	

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Names.	*Residence.*	*Admitted.*	*Remarks.*
Grant, Geo. H.	Richmond	1888.	
Hibberd, Jas. F	Richmond	1877.	President of State Society 1862.
Hobbs, Marmaduke.	Richmond	1889.	
Johnson, Levi C	Fountain City.	1879.	
Johnson, Rhoda	Fountain City.	1891.	
Johnston, Melville F.	Richmond	1888.	
King, Jas. E.	Centreville	1889.	
Mauk, John R.	Cambridge City	1875.	
Morrow, Sarah Jane	Richmond	1884.	
Smith, S. E	Richmond	1891.	
Tillson, Hosea	Centreville	1876.	
Weist, Jacob R	Richmond	1876.	President State Society 1879.

Society meets on the second Thursday in January, March, May, July, September and November.

WELLS COUNTY.

OFFICERS.	CENSORS.
H. H. Weer, Pres.	J. I. Metts.
G. E. Fulton, Sec.	L. A. Spaulding.
L. Mason, Treas.	J. C. Fulton.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Fulton, J. C.	Bluffton	1878.	
Fulton, G. E	Bluffton	1878.	
Garrett, F. W	Liberty Center	1890.	
Goodin, S. A.	Nottingham P.O.	1888.	
Hessler, George	Tocsin	1889.	
Mason, L	Bluffton	1878.	
Metts, J. I.	Ossian	1878.	
Metts, A. H	Ossian	1878.	
Mickey, H. P	Poneto	1889.	Removed to Richmond.
Newman, M. N.	Ossian	1878.	
Spaulding, L. A	Bluffton	1878.	
Weer, H. H.	Bluffton	1891.	
Wilson, L. J.	Domestic	1891.	

Society meets on the second Tuesday of each month, except July, August and September.

WHITE COUNTY.

OFFICERS.	CENSORS.
A. B. Bullou, Pres.	W. O. Harland.
W. O. Walker, Vice-Pres.	John Medaris.
M. T. Didlake, Sec.-Treas.	R. M. Delzell.

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MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Ballou, A. B.	Burnettsville	1870.	
Clayton, Geo. R	Monon	1883.	
Carr, J. L.	Monon	1887.	Suspended.
Delzell, R. M	Reynolds	1872.	
Dickson, H	Chalmers	1892.	Moved from county.
Didlake, M. T.	Monticello	1877.	
Harland, W. O	Monon	1892.	Suspended.
Jones, A. B	Burnettsville	1875.	Suspended.
Medaris, John	Brookston	1866.	
McAllister, ——	Idaville	1891.	Suspended.
Noland, J. W	Buffalo	1891.	Suspended.
Reed, J. H	Idaville	1886.	
Spencer, Wm	Monticello	1886.	
Walker, Wm. O	Wolcott	1890.	

Society meets on the second Tuesday of January, April, July and October.

WHITLEY COUNTY.

OFFICERS.	CENSORS.
William Weber, Pres.	D. G. Linvill.
N. I. Kithcart, Sec.	E. L. Eberhard.
M. Ireland, Treas.	D. E. Webster.

MEMBERS.

Names.	*Residence.*	*Admitted.*	*Remarks.*
Eberhard, Eli	South Whitley.	1883.	
Grisier, F. G.	Collins.	1883.	
Ireland, Martin	Columbia City.	1883.	
Kithcart, N. I.	Columbia City.	1883.	
La Follette, T. J	South Whitley.	1883.	
Linvill, D. G.	Columbia City.	1883.	
Linvill, D. S.	Columbia City.	1888.	
Magers, F. M	Churubusco.	1883.	
Scott, Wm. C	Hecla	1886.	
Weber, William	Columbia City.	1883.	
Webster, D. E.	Columbia City.	1883.	

Society meets on the second Tuesday of January, April, July and October.

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PRESIDENTS AND VICE-PRESIDENTS

OF THE

Indiana State Medical Society

SINCE ITS ORGANIZATION.

PRESIDENTS.

Names.	*Residence.*	*Elected.*
L. H. Dunlap (temporary)	Indianapolis	1849
W. T. S. Cornett	Versailles	1849
A. Clapp	New Albany	1850
Geo. W. Mears	Indianapolis	1851
J. H. Brown	Lawrenceburg	1852
E. Deming	Lafayette	1853
Madison J. Bray	Evansville	1854
William Lomax	Marion	1855
Daniel Meeker	Laporte	1856
T. Bullard	Indianapolis	1857
Nathan Johnson	Cambridge City	1858
David Hutchinson	Mooresville	1859
B. S. Woodworth	Fort Wayne	1860
Theophilus Parvin	Indianapolis	1861
J. F. Hibberd	Richmond	1862
John Sloan	New Albany	1863
S. M. Linton	Columbus	1864
M. H. Harding	Lawrenceburg	1865
Vierling Kersey	Richmond	1866
J. S. Bobbs	Indianapolis	1867
Nathaniel Field	Jeffersonville	1868
Geo. Sutton	Aurora	1869
R. N. Tobb	Indianapolis	1870
H. P. Ayers	Fort Wayne	1871
Joel Pennington	Milton	1872
Isaac Casselberry	Evansville	1873
R. E. Haughton	Richmond	1874

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Names.	*Residence.*	*Elected.*
J. H. HELM	Peru	1875
S. S. BOYD	Dublin	1876
L. D. WATERMAN	Indianapolis	1877
L. HUMPHREYS	South Bend	1878
J. R. WEIST	Richmond	1879
THOMAS B. HARVEY	Indianapolis	1880
MARSHALL SEXTON	Rushville	1881
WM. H. BELL	Logansport	1882
S. E. MUNFORD	Princeton	1883
J. H. WOODBURN	Indianapolis	1884
J. S. GREGG	Fort Wayne	1885
G. W. H. KEMPER	Muncie	1886
H. CHARLTON	Seymour	1887
W. H. WISHARD	Indianapolis	1888
J. D. GATCH	Lawrenceburg	1889
G. C. SMYTHE	Greencastle	1890
E. R. WALKER	Evansville	1891
G. F. BEASLEY	Lafayette	1892
S. A. DOUGHERTY	South Bend	1893

VICE-PRESIDENTS.

Names.	*Residenee.*	*Elected.*
N. JOHNSON (temporary)	Cambridge City	1849
L. RYAN (temporary)	Anderson	1849
J. W. FLORER (temporary)	Alamo	1849
C. WALLACE (temporary)	Indianapolis	1849
A. CLAPP	New Albany	1849
N. JOHNSON	Cambridge City	1849
L. DUNLAP	Indianapolis	1849
DR. FARQUHER	Wabash	1849
WILLIAM LOMAX	Marion	1850
R. CURRAN	Indianapolis	1850
WILLIAM DAVIDSON	Madison	1850
W. W. HITT	Vincennes	1850
H. M. DOWLING	New Albany	1851
S. GRIMES	Delphi	1851
J. PENNINGTON	Milton	1851
CHARLES PARRY	Indianapolis	1851
WILLIAM BYFORD	Evansville	1852
WILLIAM DAVIDSON	Madison	1852
V. KERSEY	Milton	1852
T. BULLARD	Indianapolis	1852
N. JOHNSON	Cambridge City	1853
JAMES MCLELLAND	Jefferson City	1853
M. H. HARDING	Lawrenceburg	1853

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Names.	*Residence.*	*Elected.*
SAMUEL REID	Salem	1853
O. L. CLARK	Lafayette	1854
P. S. SHIELDS	New Albany	1854
J. PENNINGTON	Milton	1854
J. F. MOTHERSHEAD	Indianapolis	1854
GEO. SUTTON	Aurora	1855
G. B. WALKER	Evansville	1855
C. BOWMAN	New Albany	1855
D. MEEKER	Laporte	1855
JOHN SLOAN	New Albany	1856
W. W. HITT	Vincennes	1856
T. W. FLORER	Alamo	1856
JOHN MOFFETT	Rushville	1856
T. J. COGLEY	Madison	1857
D. HUTCHINSON	Mooresville	1857
C. WEST	Hagerstown	1857
W. R. WINTON	Wabash	1857
T. R. AUSTIN	New Albany	1858
BENJ. NEWLAND	Bedford	1858
S. W. FRY	Crawfordsville	1858
M. M. LATTA	Goshen	1858
JOHN SLOAN	New Albany	1859
R. M. O'FARRALL	Lafayette	1859
J. S. MCLELLAND	Jefferson City	1859
R. E. HAUGHTON	Richmond	1859
J. N. GREEN	Stilesville	1860
CHAS. FISHBACK	Shelbyville	1860
L. HUMPHREYS	South Bend	1860
ISAAC CASSELBERRY	Evansville	1860
CALVIN WEST	Hagerstown	1861
HENRY COX	Danville	1861
A. H. ROBBINS	Rochester	1861
J. A. SKINNER	Vincennes	1861
W. R. WINTON	Wabash	1862
H. G. SEXTON	Rushville	1862
A. PRESTON	Greencastle	1862
JOHN MOFFETT	Rushville	1862
A. G. PRESTON	Greencastle	1863
JOHN MOFFETT	Rushville	1863
BENJ. NEWLAND	Bedford	1863
CALVIN WEST	Hagerstown	1863
WILSON LOCKHART	Danville	1864
T. B. HARVEY	Indianapolis	1865
J. H. WOODBURN	Indianapolis	1866
R. B. JESSUP	Vincennes	1867
R. N. TODD	Indianapolis	1868
H. P. AYERS	Fort Wayne	1869
I. N. ROSENTHAL	Fort Wayne	1870

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Names.	*Residence.*	*Elected.*
J. K. Bigelow	Indianapolis	1871
R. E. Haughton	Richmond	1872
Wilson Hobbs	Knightstown	1873
W. B. Lyons	Huntington	1874
F. W. Beard	Vincennes	1875
E. D. Laughlin	Orleans	1876
N. P. Howard	Greenfield	1877
Benj. Newland	Bedford	1878
J. D. Gatch	Lawrenceburg	1879
John D. Mitchell	Terre Haute	1880
F. J. Van Vorhis	Indianapolis	1881
S. H. Charlton	Seymour	1882
W. H. Schultz	Lebanon	1883
J. S. Gregg	Fort Wayne	1884
W. H. Hurt	Waynetown	1885
W. V. Wiles	Spencer	1886
C. W. Burket	Warsaw	1887
A. G. Porter	Lebanon	1888
Silas T. Yount	Lafayette	1889
H. D. Wood	Angola	1890
Erwin Wright	Huntington	1891
C. H. Smith	Lebanon	1892
N. N. Shipman	Seymour	1893

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LIST OF PAPERS PRESENTED

TO THE

INDIANA STATE MEDICAL SOCIETY,

FROM THE

Date of Its Organization to 1893, Inclusive.

Name of Author.	Residence.	Date.	Page.	Name of Paper.
Adams, J. McC.	Frankfort	1871	83	Report on the Prevailing Diseases of the Seventh Congressional District.
"	"	1872	111	"
Alexander, J. H	Clifty	1881	50	Trichinosis—Report on Two Cases.
Andrews, Geo. L	Laporte	1879	26	Rational Treatment of Dysentery.
Armfield, T. O	Tipton	1890	79	One of Nature's Greatest Freaks.
Arthur, C. S	Portland	1894	188	Fractures of the Skull with Injuries to the Brain.
Arwine, J. S	Columbus	1884	40	Animal or Race Poison.
Austin, W	Windfall	1882	62	An Operation for Ovariotomy.
Axline, A. J	Rushville	1882	114	Diphtheria.
Ayers, H. P.	Fort Wayne	1859	30	Report on Obstetrics.
"	"	1867	127	Epidemic Dysentery in Allen County in 1845, 1854 and 1864.
"	"	1868	106	Indiana's Idiotic Children.
"	"	1871	161	Self-Pollution in Children.
"	"	1872	1	President's Address.
Bailey, Rachel S	Spiceland	1886	172	Study of Heredity in Treatment of Disease.
Baker, Moses.	Stockwell	1885	136	Post-Partum Hemorrhage.
Ball, J. B.	Lebanon	1894	202	Acute Labor Pneumonitis.
Bateman, W. F.	Roachdale	1888	56	Chorea.
Beasley, George F	Lafayette	1883	181	Case of Gunshot Wound of the Knee.
"	"	1893	5	Tendency of the Medical Profession.
Beck, Joseph R.	Fort Wayne	1875	95	Iodide of Patassium.
"	"	1880	100	Tumors of Anterior Walls of Vagina.
"	"	1880	222	Report on Necrology.
Bell, W. H	Logansport	1875	163	Epilepsy Arising from Uterine Diseases.
"	"	1876	70	Reflex Morbid Condition of the Uterus.
"	"	1883	35	Management of Still-Born Children after Delivery.
"	"	1882	5	President's Address.
Bell, Guido.	Indianapolis	1886	38	On Washing Out the Stomach as a Relief and Cure in Certain Cases of Obstruction of the Bowels.
"	"	1893	179	On the Autonomy of the Heart.
Berteling, J. B		1893	162	Empyema, with Report of Cases.
Black, J. P	Greenfield	1891	241	Some Forms of Rhinitis.
Blair, W. W	Princeton	1878	96	Epidemic Small-Pox.
Blitz, Adolph.	Indianapolis	1889	143	Glaucoma.
Blount, C. N	Hagerstown	1874	91	Diabetes Mellitus.
"	"	1887		Cerebral Softening.
Bobbs, J. S	Indianapolis	1853	78	Report of Committee on Surgery.
"	"	1856	15	Report on Surgery.
"	"	1857	53	Biographical Sketch of Mr. Deming.
"	"	1868	2	President's Address—The Origin, Object and Progress of the Ind. State Med. Soc.

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PAPERS—Continued.

NAME OF AUTHOR.	RESIDENCE.	Date.	Page.	NAME OF PAPER.
Bond, C. S	Richmond	1885	78	Consumption in Indiana.
"	"	1886	89	Urea.
"	"	1887		Urea.
"	"	1892	66	The Purpose of Drugs.
"	"	1893	138	Chemistry of Disease.
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Eastman, Thos. B., Indianapolis.
Eberhard, Eli L., South Whitley.
Eckert, Chas., Marion.
Edenharter, George F., Indianapolis.
Edwards, C. H., Lyons.
Edwards, O. W., Frankfort.
Eckelman, F. C., Elkhart.
Eckelman, Metius M., Elkhart.
Eichelberger, W. C., Terre Haute.
Eidson, J. W., Bourbon.
Elder, E. S., Indianapolis.
Ellison, W. T., Heltonville.
Elstun, Wm. J., Indianapolis.
Ely, J. M., New Palestine.
Ely, L. C., New Palestine.
Emery, C. H., Bedford.
Evans, C. S., Union City.
Evans, E. B., Greencastle.
Evans, J. J., Winchester.
Everett, W. E., Whitelick.

Fairfield, W. J., Anderson.
Faith, A. H., Plainville.
Falk, Fred, Columbus.
Fall, W. R., North Vernon.
Fankboner, W. R., Marion.
Farabee, C. E., Danville.
Farquhar, A. H., Ridgeville.
Farr, U. H., Martinsville.
Fattic, John B., Anderson.
Faubion, James, Heltonville.
Faucett, J. H., Williams.
Ferguson, C. E., City Hosp., Ind'polis.
Ferguson, Frank C., Indianapolis.
Fermier, P., Weisburg.
Ferree, S. L., Indianapolis.
Ferris, E. S., New Castle.
Ferris, Samuel, New Castle.
Fertich, G. W. Dunkirk.
Fields, M. H., Indianapolis.
Fine, Ephriam M., Steam Corners.
Fink, H. A., South Bend.
Finley, Geo. W., Harmony.
Fisher, E. S., Markle.
Fisher, John M., Anderson.
Fitch, A. P., Lebanon.
Flanders, J. W., Dupont.
Fletcher, C. I., Indianapolis.
Fletcher, W. B., Indianapolis.
Flynn, Wm., Marion.
Ford, James, Wabash.
Ford, James H., Wabash.
Ford, J. H., Auburn.
Fodrea, Z. H., Westfield.
Francis, W. R., Marion.
Franks, H. P., Losantville.
Franks, Wm. H., Ligonier.
Fravell, T., Westville.
Frederick, G. W., Ridgeville.
Freed, M. A., Clay City.
Freeland, J. L., Weisburg.
Freeland, J. T., Bedford.
Freeman, B. R., Decatur.
Freeman, Edward D., Osgood.
Freeman, Wm., North Madison.
French, Jno. S., Danville.
French, W. W., Fort Branch.
Frets, J. C., Deedsville.
Frink, C. S., Elkhart.
Frink, Charles W., Elkhart.
Friermood, E. K., Amboy.
Fullenwider, C. H., Petersburg.
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Galbraith, Thomas S., Seymour.
Galloway, C. E., Indianapolis.
Gantz, R., Saline City.
Garr, J. O., Kokomo.
Garrett, F. W., Liberty Center.
Garrettson, Wm. M., Perkinsville.
Garrigus, J. J., Tangier.
Garver, J. J., Indianapolis.
Gaston, J. H., Bloomington.
Gaston, J. M., Indianapolis.
Gatch, J. D., Lawrenceburg.
Gautz, Thomas, Freedom.
Gaylord, H. G., Indianapolis.
Geiss, John F., Indianapolis.
Gerrish, Millard F., Seymour.
Gers, Henry, Washington.
Gerstmeyer, Charles, Terre Haute.
Gibson, John B., Georgia.
Gifford, S. A., Jr., Laurel.
Gifford, J. C., Brazil.
Gilbert, Joseph L., Kendallville.
Gillespie, J. I., Reelsville.
Gillum, Wm. H., Rockville.
Gimmel, H. C., Markel.
Glasgo, T. A., Brazil.
Glass, Thos. F., Arlington.
Glaze, L. A., Poseyville.
Glezen, E. A., Ireland.
Glover, John, Evansville.
Goar, C. S., Goldsmith.
Gobble, F. R., Grantsburg.
Goldsberry, John A., Bloomingdale.
Good, Charles H., Warren.
Goodale, C. M., Metz.
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Goodrich, C. D., Lima.
Goss, James, Freedom.
Gould, Charles E., Rochester.
Gould, S. W., Argos.
Gould, Vernon, Rochester.
Graham, B. R., Peru.
Graham, O. P., Jeffersonville.
Graham, T. A., Jeffersonville.
Graham, W. B. Noblesville.
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Gray, J. A., Otterbein.
Gray, O. F., Spencer.
Grayston, B. H. B., Huntington.
Grayston, C. E., Huntington.
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Green, George R., Muncie.
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Green, James W., Shelbyville.
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Green, T. T., Albion.
Green, W. F., Shelbyville.
Green, W. T., Albion.
Greenawalt, G. L., Fort Wayne.
Greene, J. B., Mishawaka.
Greenwell, Franklin, Huntertown.
Gregg, E. J., Bunker Hill.
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Griffith, Francis P., Lagrange.
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Griggs, O. B., Brooklyn.
Grigsby, W. B., Oaktown.
Grimes, W. T., Coatsville.
Grisier, F. G., Collins.
Gronendyke, T. W., New Castle.
Gross, Marian, Rockville.
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Hackleman, F. E., Rushville.
Hadley, E., Indianapolis.
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Hale, N. T., Wabash.
Hall, John W., Portland.
Hamilton, A. A., Marion.
Hamilton, F., Hudson.
Hamilton, J. A., Advance.
Hamilton, J. J., Plymouth.
Hamilton, S. W., Connersville.
Hammond, F. I., Indianapolis.
Hampton, S. E., Milton, Ky.
Hanmore, John, Marion.
Hanna, L. M., Greencastle.
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Harris, J. E., Bloomington.
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Harris, R. W., Algiers.
Harris, W. C., Carpentersville.
Harris, W. W., Ellettsville.
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Harter, J. H., Anderson.
Harter, William P., Anderson.
Hartloff, Richard, Evansville.
Hauser, B. A., Somerset.
Harvey, W. D., Plainfield.
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Haymaker, G. W., Charleston.
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Henderson, H. M., Salem.
Hendricks, W. E., Martinsville.
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Henning, R., Jeffersonville.
Henry, W. C., Aurora.
Hensler, Ernest, West Franklin.
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Hollis, Samuel, Upland.
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Holmes, B. F., Asherville.
Holton, W. M., New Harmony.
Holtzendorff, A. C., Plymouth.
Holtzendorff, Chas., Plymouth.
Holtzendorff, Henry, Plymouth.
Hon, B. J., Bedford.
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Hood, T. C., Dana.
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Hopper, I. J., DePauw.
Horn, W. C., Pennville.
Horne, Samuel S., Jonesboro.
Hornocker, S. D., Silverville.
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House, J., Kyle.
Howard, N. P., Sr., Greenfield.
Howard, N. P., Jr., Greenfield.
Howard, S. B., Kossuth.
Howard, W. R., Lily Dale.
Howe, Ed., Smithville.
Hubbard, W. H., Marion.
Hudson, Benj. F., Montezuma.
Hughes, W., Lima.
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Humston, M. G., Goodland.
Hunt, Ed., Indianapolis.
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Hunt, J. Walter, Anderson.
Hunt, Mason V., Anderson.
Hunt, P. G. C., Indianapolis.
Hunt, Stephen, Coatesville.
Hunt, T., Greencastle.
Hunter, R. P., Marion.
Hurst, S. H., Laconia.
Hurt, George K., Elizaville.
Hurt, W. J., Waynetown.
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Hutchason, R. W., Cannelton.
Hutchings, B. F., Crawfordsville.

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Inlow, I. W., Blue Ridge.
Inlow, J. J., Manilla.
Ireland, Martin, Columbia City.
Irwin, L. M., Lafayette.

Jackson, Sarah C., Jeffersonville.
Jackson, T. G., Muncie.
Jacobsohn, Jos., Evansville.
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Jameson, P. H., Indianapolis.
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Jeffries, W. E., Indianapolis.
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Johnson, E. E., Leesburg.
Johnson, H. V. V., McMinnville, Ore.
Johnson, I. C., Kokomo.
Johnson, J. A., Akron.
Johnson, Luther, Bourbon.
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Johnson, L. C., Fountain City.
Johnson, Rhoda, Fountain City.
Johnson, T. W., Marion.
Johnson, O. B., Lizton.
Johnston, M. F., Richmond.
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Jones, J. M., Cataract.
Jones, O. H., Crawfordsville.
Jones, T. B., Lynnville.
Jones, T. S., Shelbyville.
Jones, W. R., Bicknell.
Jones, G., Charlestown.
Judah, W., Bedford.
Justice, J. H., Maxwell.
Justice, W. A., Eden.

Kahlo, G. D., Indianapolis.
Kahlo, H. C., Indianapolis.
Kane, J. M., Rosston.
Kautz, John, La Gro.
Kazer, Jacob, Plymouth.
Keegan, C. J., Canal.
Keegan, E. W., Crawfordsville.
Keller, F. G., Spartansburg.
Kelly, C. M., Winchester.
Kelly, John C., Mitchell.
Kelsey, J. S., Xenia.
Kelso, R. D., Waveland.
Kemper, G. W. H., Muncie.
Kempf, E. J., Jasper.
Kendall, J. T., Argos.
Kendle, G. C., Princeton.
Kenney, Henry, Linden.
Kennedy, L. H., Danville.
Kennedy, T. C., Shelbyville.
Kenneny, Sam, Shelbyville.
Keiper, Geo. F., Lafayette.
Kern, Lewis, Kokomo.
Kern, Theodore, Kokomo.
Kerth, Jacob H., Evansville.
Kidd, W. G., Princeton.
Kidder, J. S., New Mt. Pleasant.
Kimball, A. D., Marion.
Kimball, Glen D., Marion.
Kimball, T. C., Marion.
Kimberlin, A. C., Indianapolis.
Kimmel, A. J., Hudson.
Kime, J. T., Petersburg.
King, C. H., Wabash.
King, James E., Centreville.
King, O. H., Pierceton.
King, W. F., Centreville.
King, W. R., Greenfield.
Kinsey, D. S., Portland.
Kirk, E E., Spiceland.
Kirkhoff, C. H., New Palestine.
Kitchem, George V., Claypool.
Kitchen, J. M., Indianapolis.
Kithcart, N. I., Columbia City.
Knapp, Charles, Evansville.
Knapp, S. O., Frankfort.
Knapp, Victor, Ferdinand.
Kneale, W. W., Anderson.
Knepper, E. W., Ligonier.
Knerr, C. B., Indianapolis.
Knight, John C., Jonesboro.
Kolb, John C., Jonesboro.
Kolb, Jonathan, Oxford.
Kraussgrill, D., Wadesville.
Kyle, T. M., Aurora.

LaFollette, T. J., South Whitley.
LaFollette, Wm. P., Mott.
Ladd, Charles W., Cannelton.
Lamb, J., Aurora.
Lambert, J. A., Indianapolis.
Lammars, F. H., Greencastle.
Landess, G. A., Van Buren.
Lane, Wm. H., Angola.
Larimore, J. M., Carrollton.
Larkin, J. B., Mitchell.
Larkins, D. L., Terre Haute.
Lash, H. M., Indianapolis.
Latta, M. M., Goshen.
Laughlin, C. E., Mitchell.
Laughlin, Edmund D., Orleans.
Lawshet, I. F., Swazee.
Lawson, John E., Corydon.
Lawson, W. T., Danville.
Layman, James H., Chestnut Hill.
Leathers, D. A., Mooresville.
Leatherman, A. I., Indianapolis.
Leatherman, J. R., Greencastle.
Lee, R. E., Boswell.
Leech, E. W., Shelbyville.
Leech, T. L., Crawfordsville.
Leisure, Lydia.
Leland, J. S., Argos.
Lemmon, S. W., Albion.
Lemon, Anna M., Muncie.
Letherman, A. P., Valparaiso.
Lewis, E. R., Indianapolis.
Lewis, George O., Madison.
Lewis, James F., Dupont.
Leyman, E. H., Huntington.
Light, A. B., North Vernon.
Lindley, C. M., Brooklyn.
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Linthicum, E., Evansville.
Linvill, D. S., Columbia City.
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Loehr, E. C., Noblesville.
Long, Charles R., Pierceton.
Long, J. B., Indianapolis.
Long, R. W., Indianapolis.
Lord, Levi J., Marion.
Loring, C. J., Rochester.
Loring, D. J., Valparaiso.
Loring, S. C., Burr Oak.
Loudon, L. C., Priam.
Lovett, J. A., Goodland.
Lowden, L. A., Manilla.
Lowder, C. M., Springville.
Lowder, H. R., Bloomfield.
Lowder, L. T., Bloomington.
Lowder, Wm. L., Tipton.
Lower, M. O., North Manchester.
Ludlum, B. F., Marion.
Lukemeyer, E. G., Huntingburg.
Lybrook, W. E., Young America.
Lynch, J. Yancy, Rosedale.
Lyons, J. H., Hillisburg.

Mace, W. D., Lafayette.
Mackey, C. W., Portland.
Maddox, S. E., Montpelier.
Maddox, W. B. S., Vandalia.
Maienthal, B. L., New Albany.
Maloney, Francis C., Avilla.
Malsbury, J. O., Peru.
Mann, E. R., Oldenburg.
Markel, J. E., Winchester.
Marsee, J. W., Indianapolis.
Marsh, Simeon S., Peru.
Marshall, D. J., North Middletown.
Marshall, D. M., Columbia City.
Marshall, R. C., Cowan.
Martin, Alonzo, Bellmore.
Martin, G. F., Corydon.
Martin, R. W., Salem.
Martin, Simeon, North Salem.
Martin, S. M., Greenfield.
Martin, W. G., Indianapolis.
Martin, W. H., Kokomo.
Mason, C. R., Hartford City.
Mason, G. C., Oakland City.
Mason, L., Bluffton.
Mason, Samuel, Pennville.
Mason, T. A., Terre Haute.
Masters, J. L., Indianapolis.
Matheny, T. G., Auburn.
Matthews, J. H., Madison.
Mattox, W., Terre Haute.
Maughmer, G. C., Wawpecong.
Mauk, J. R., Cambridge City.
Mavity, J. S., Fowler.
Maxaur, F. H., Princeton.
Maxwell, Allison, Indianapolis.
May, G. W., Orleans.
May, W. L., Crawfordsville.
Mayfield, R. N., Springfield.
McAdams, C. C., Celestine.
McAllister, J. W., Idaville.
McArthy, J. F., Valparaiso,
McCain, R. C., Kentland.
McCarty, W. W., Canaan.
McCaskey, G. W., Fort Wayne.
McClure, D., Jeffersonville.
McClurg, Wm. H., Kokomo.
McClurkin, J. C., Evansville.
McCool, H. T., Chandler.
McCorkle, T. H., Edwards.
McCormick, Thomas H., Fort Wayne.
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McCoy, George T., Columbus.
McCoy, P. T., Evansville.
McCoy, Wm. A., Madison.
McDonald, A. J., Mitchell.
McDonald, W. B., New Augusta.
McDowell, H. P., Peru.
McFadden, W. G., Shelbyville.
McIntyre, C. W., New Albany.
McIntyre, C. W., Jr., New Albany.
McKelvey, S. R., Patricksburg.
McKey, Rob't H. W., Lusk's Springs.
McKinney, George W., Jonesboro.
McKittrick, Albert, Danville.
McLahlan, D. C., Harrodsburg.
McLeod, A. J., Columbus.
McMahan, Agnes C., Evansville.
McMahan, S. W., Rushville.
McMahan, W. R., Huntingburg.
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McNabb, T. B., Fremont.
McNaull, Charles, Winchester.
McNeil, Scott, Stone Bluff.
McNutt, —, Zionsville.
McPherson, S. L., Montgomery.
McShane, J. T., Indianapolis.
Medaris, John, Brookston.
Meek, John A., Jonesboro.
Meek, J. A., Bunker's Hill.
Meek, J. B., Amboy.
Megee, Omer, Rushville.
Megee, W. N., Rushville.
Menough, T. F., Brazil.
Merritt, J. N., Oaktown.
Metcalf, C. N., Indianapolis.
Metts, A. H., Ossian.
Metts, J. I., Ossian.
Metzler, S. N., Jonesboro.
Mickey, H. P., Poneto.
Miles, A. A., Milton, Ky.
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Mooney, H. C., Laketon.
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Moore, P. G., Wabash.
Moore, William, Convenience.
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Morgan, J. O., Springfield.
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Munsey, Samuel T., New Mt. Pleasant.
Muret, J. W., Mount Ayr.
Murphy, Edward, New Harmony.
Murphy, C. W., Salem.
Murphy, James M., Arcadia.
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Myers, Wm. H., Fort Wayne.

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Neal, Daniel, New Harmony.
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Newland, Jas. H., Kaut.
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Noland, John W., Buffalo.
Norman, I. James, Parkville.
Norman, Seaton, Evansville.
Norton, D. F., Petersville.
Nussel, Frederick, Brazil.

Oatley, JohnH., New Philadelphia.
O'Farrell, R. M., Lafayette.
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Oliver, John H., Indianapolis.
O'Neal, Laughlin, Somerset.
O'Neal, Oren, Wabash.
Osborn, John A., New Winchester.
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Osterman, A. G., Dudleytown.
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Owen, A. M., Evansville.
Owen, John E., Evansville.
Owens, R. J., Cedar Grove.
Owsley, S. W., Darlington.

Page, Lafayette, Indianapolis.
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Parker, M. G., Danville.
Parks, B. W., Bourbon.
Parr, J. N., Joliets ville.
Parson, C. H., Rushville.
Passage, Henry V., Peru.
Patten, J. C., Francisco.
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Patterson, J. W., Fairmount.
Payne, A. T., Terre Haute.
Payne, J. H., Indianapolis.
Payne, John N., New Albany.
Paynter, C. L., Salem.
Pearman, Francis M., Palestine.
Pearse, S. H., Mt. Vernon.
Peck, S. W., Washington.
Peckenpaugh, G. R., Mt. Vernon.
Pence, Rollin, Peru.
Perce, Benjamin H., Anderson.
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Peters, W. H., Lafayette.
Pettijohn, O. B., Indianapolis.
Pettijohn, O. B., Noblesville.
Peyton, D. C., Jeffersonville.
Pfaff, O. G., Indianapolis.
Phillips, C. W., Scipio.
Phipps, J. M., Bedford.
Pickering, S., New Lisbon.
Pierson, A., Spencer.
Pitzer, A. B., Tipton.
Plughe, M. L., Goldsmith.
Pollard, W. S., Evansville.
Poole, G. W., Russellville.
Porter, A. G., Lebanon.
Porter, John R., Lebanon.
Porter, Miles F., Fort Wayne.
Potter, John E., Milford.
Potter, Theodore, Indianapolis.
Potts, J. F., Bloomington.
Powell, J. Z., Logansport.
Powell, T. E., Evansville.
Pratt, B. W. Goodland.
Pratt, C. C., Wilkerson.
Pratt, L. M., Goodland.
Preston, J. L., Cloverdale.
Pritchard, C. A., Gosport.
Pritchard, W. R., Cloverdale.
Pritchett, W. S., Evansville.
Puckett, John L., Kokomo.
Puckett, J. W., Muncie.
Pugh, E. J., Upland.
Pugh, W. A., Rushville.
Purkhiser, W. J., Salem.

Rainey, H. W., Lafayette.
Rains, G. W., Jonesville.
Ramsbrock, C. R., Huntingburg.
Ramsey, D. C., Mount Vernon.
Ramsey, L., Monon.
Ramsey, S. G., Peru.
Randolph, D. F., Waldron.
Ransburg, M. V., Salem Center.
Rariden, C. E., Bedford.
Rariden, S. A., Bedford.
Ratcliffe, B., West Newton.
Rathburn, Charles, Salem.
Rawles, John W., Mongo.
Rawlings, J. V., Wirt.
Rawlings, S. O., New Harmony.
Rayburn, J. W., Andersonville.
Rea, John, New Castle.
Rea, O. A., Marmont.
Read, H. G., Tipton.
Readding, Laura E., Muncie.
Reagan, A. W., Mooresville.
Reagan, Jesse S., Lebanon.
Reasoner, O. T., Shideler.
Reasoner, Wm. M., Sulphur Springs.
Reavis, W. J., Evansville.
Recker. L. H., Morocco.
Reed, E. P., Ewing.
Reed, J. H., Idaville.
Rees, W., Indianapolis.
Regennas, Eugene G., Hope.
Reid, S. M., Muncie.
Rennæ, C. A., South Bend.
Renner, M. E., Urbana.
Reves, J. L., Edwardsport.
Reyer, E. C., Indianapolis.
Reynolds, Geo. E., Kent.
Reynolds, J. M., Memphis.
Reynard, E. G., Union City.
Reynard, G., Union City.
Rhodes, E. G., Rochester.
Rice, Harrison J., Rockville.
Rice, W. H., Cuba.
Richmond, Corydon, Kokomo.
Ridenour, David, Chili.
Ristine, W. H., Crawfordsville.
Ritter, C. L., Indianapolis.
Robbins, A. H., Rochester.
Roberts, Jeremiah, Holton.
Roberts, W. H., Terre Haute.
Roberson, D. W., Deputy.
Robinson, H. C., Martinsville.
Robinson, John M., Versailles.
Robinson, T. B., Geetingsville.
Rodgers, Wm. R., Shideler.
Rodman, W. M., Brownstown.
Rogers, A. G., Parker.
Rooker, J. I., Castleton.
Roope, R. H., Columbus.
Rose, M. H., Thorntown.
Rosenthal, I. M., Fort Wayne.
Ross, J. H., Kokomo.
Ross, Justin, Marion.
Ross, Robert, Kokomo.
Ross, Walter, Kokomo.
Rowe, L. M., Indianapolis.
Rowland, George, Covington.
Rubush, D. P., Sharpsville.
Rubush, T. R., London.
Rucker, J. W., Shelbyville.
Ruddel, I. N., Jeffersonville.
Rudy, F. G., Indianapolis.
Ruddick, L., Seymour.
Ruhl, W. D., Sheldon.
Rundall, O. E., Centre Point.
Ryan, W. B., Indianapolis.
Ryker, Chas., Manville.

Salb, J. P., Jasper.
Sale, F. H , Aurora.
Sanderson, Thos., Madison.
Sawyer, F. H., South Bend.
Scales, B. W., Boonville.
Schafer, Albert, South Bend.
Schafer. C. R., Indianapolis.
Schell, Walker, Terre Haute.
Scherer, S. P., Indianapolis.
Schilling, Carl, Fort Wayne.
Schoonover, Wm. R., Warsaw.
Schull, D. C., Lebanon.

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Schump, Charles, St. Peters.
Schuyler, P. L., Evansville.
Schwartz, C. W.. Huntingburg.
Schwinn, E. P., Kirklin.
Scott, E. N., Huntington.
Scott, G. B., Greentown.
Scott, James T., Greentown.
Scott, J. Wm. C., Hecla.
Scott, William, Kokomo.
Scovell, J. T., Terre Haute.
Scudder, C. P., Washington.
Scudder, J. A., Washington.
Seal, Isaac N., Hackleman.
Searcy, George H., Muncie.
Seaton, Charles, Martinsville.
Seaton, G. W., Cartersburg.
Sebring, David A., Auburn.
Selman, J. W., Greenfield.
Sensenich, A. S., Wakarusa.
Sexton, John C., Rushville.
Seymore, C. A., Wawaka.
Shackelford, Tiffin J., Warsaw.
Shaley, F. W., Terre Haute.
Sharer, W. F., Delphi.
Shaw, A. M., Tyner.
Sheets, W. H., Jeffersonville.
Shellhamer, D. C., Puckerbrush.
Shephard, George W., Redkey.
Shephard, S. D., Everton.
Shepherd, Thomas S., Portland.
Shidler, Joseph K., Muncie.
Shields, Jas. M., Seymour.
Shipman, Norborne N., Seymour.
Shively, Marshall T., Marion.
Shoaf, F. A., Yeddo.
Shobe, W. A., Ligonier.
Shoptaugh, S. H., Princeton.
Short. I. W., Elkhart.
Short, J. L., Lagrange.
Short, W. H., Lagrange.
Shover, W. F., Delphi.
Shrock, J. J., Emma.
Shrock, H. W., Shipshewana.
Shull, C. Q., Montpelier.
Siddons, J. O., Harmony.
Siegler, R. R., Ramsey Station.
Sigmon, E. L., New Albany.
Simison, J. F., Romney.
Simmons, L. A., Kokomo.
Sims, S. G., Portland.
Sims, S. B., Frankfort.
Sipe, R. W., Orange.
Sivers, E. L., Fort Wayne.
Skidmore, C. E., Boundary City.
Sloan, George W., Indianapolis.
Sloan, John, New Albany.
Smalley, John G., Connersville.
Smalley, Mrs. Maud., Connersville.
Smith, Ada, Greenfield.
Smith, A. J., Wabash.
Smith, C. H., Lebanon.
Smith, G. B., Foresman.
Smith, Martha, Indianapolis.
Smith, A. F., Wawpecong.
Smith, Mary, Indianapolis.
Smith, C. W., Selma.
Smith, H. B., Olio.
Smith, J. F., Brazil.
Smith, J. T., Brookston.
Smith, J. T., Glazen.
Smith, J. W., Gosport.
Smith, S. W., Leesville
Smith, S. E., Richmond.
Smith, Wickliffe, Delphi.
Smith, W. G., Circleville.
Smith, William H., Rushville.
Smith, William H., Leesville.
Smith, J. F., Brazil.
Smith, R. H., Kokomo.
Smythe, G. C., Greencastle.
Snyder, J. W., Fairland.
Snyder, Leander, Lafayette.
Snyder, Katharine C., Evansville.
Snowders, David H., Kokomo.
Spain, A. W., Terre Haute.
Spann, B. F., Anderson.
Sparks, James B., Carthage.
Spaulding, A. M., Brushy Prairie.
Spaulding, J., Rising Sun.
Spaulding, L. A., Bluffton.
Speidel, F. W., Leopold.
Spencer, E. V., Mount Vernon.
Spencer, W. M., Monticello.
Spicer, J. W., Acton.
Spink, Mary A., Indianapolis.
Spohn, Geo. W., Elkhart.
Spooner, Jared, Peru.
Spradley, H. M., Selvin.
Spurrier, John H., Rushville.
Spurgeon, F., Mount Meridian.
Spurgeon, W., Kossuth.
Staley, L. B., Bicknell.
Stanfer, E. R., Fremont.
Starr, W. L., New Albany.
Sterne, A. E., Indianapolis.
Steelsmith, John M., Terhune.
Stemen, C. B., Fort Wayne.
Stemen, G. B., Fort Wayne.
Sterrett, J. E., Logansport.
Stevens, B. C., Logansport.
Stewart, Jonas, Anderson.
Stewart, F. J., Glendale.
Stewart, J. L., New Albany.
Stewart, Chas. S., Garrett.
Stillson, J. O., Indianapolis.
Stilwell, Joseph A., Brownstown.
Stockton, Sarah, Indianapolis.
Stockwell, S. M., South Bend.
Stone, R. F., Indianapolis.
Storch, L. A. E., Indianapolis.
Stork, H. W., Holland,
Stough, J. A., Mishawaka.
Stout, H. H., Cicero.
Stout, Orlando L., Upland.

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Stout, Wm. R., Hillsboro.
Straughn, J. W., Parkersburg.
Strickland, Geo., Francisco.
Strickler, S. L., Boggstown.
Stuckey, F. V., Gosport.
Stuckey, J. M., Gosport.
Sturgis, L. F., Fort Wayne.
Stunkard, T. C., Terre Haute.
Suman, Wm., Anderson.
Sutcliffe, J. A., Indianapolis.
Sutton, J. A., Argos.
Sutton, H. H., Aurora.
Swafford, B. F., Terre Haute.
Swan, Lyrus E., Kent.
Swartz, D. J., Auburn.
Swartz, Vesta M. W., Auburn.
Swartzel, J. A., Vincennes.
Sweeney, I. T., Milton.
Sweet, Edward, Martinsville.
Swerengen, H. V., Fort Wayne.

Talbott, E. O., Bowling Green.
Tarleton, Robert H., Martinsville.
Taylor, E. A., York Center.
Taylor, J. H., Indianapolis.
Teal, George A., Kendallville.
Teal, Norman, Kendallville.
Templin, Emma S., Anderson.
Terrell, W. H., Filmore.
Thomas, J. J., Winamac.
Thomas, Samuel C., Milroy.
Thomas, C. L., Logansport.
Thomas, W. H., Indianapolis.
Thompson, G. W., Winamac.
Thompson, W. H., Winamac.
Thompson, D. A., Indianapolis.
Thompson, J. L., Indianapolis.
Thompson, S. G., Wabash.
Thompson, W. C., Indianapolis.
Thorn, J. C., Kokomo.
Thorpe, A. L., Mishawaka.
Throckmorton, G. K., Lafayette.
Tilford, A. S., Hall.
Tilford. Salem A., Martinsville.
Tilson, Hosea, Centerville.
Todd, L. L., Indianapolis.
Todd, S. G., Woodland.
Tomlinson, Virginia, Indianapolis.
Towey, J. T., Russellville.
Towles, A. N., Danville.
Townsend, R. C., Osgood.
Townsend, S. B., Osgood.
Trader, J. L., Avilla.
Trees, I. W., Smithland.
Trembly, Dan G., Mace.
Trobaugh, W. A., Cutler.
Trout, Robert E., Oaktown.
Trowbridge, Reese, Lebanon.
Troy, S. A., Milner's Corner.
Truitt, Geo. W. C., Guilford.
Try, Charles W., Bracken.
Tucker, A. R., Cicero.
Tucker, D. W., Boonville.
Tucker, Thomas M., Salem.
Tucker, H. G., Cromwell.
Tucker, Wm. M., Tampico.
Tucker, G. W., Colfax.
Tyner, S. L., Boonville.

Umberhine, Chas. D., Reese's Mills.

Vancleave, Elijah L., Catlin.
Van Metre, I. N., Florida.
Van Nuys, D. H., Lebanon.
Varner, George W., Evansville.
Vaugan, M., Pulaski.
Vaughan, J. J., Haw Patch.
Veach, P. H., Staunton.
Venneman, R. T., Cannelton.
Vernon, George W., Indianapolis.
Von Riper, A. W., New Carlisle.
Voris, Samuel M., Columbus.
Voyles, H., Fayetteville.

Wadsworth, A., Indianapolis.
Wagner, Theo. A., Indianapolis.
Wahl, George T., Bremen.
Walker, D. R., Reese's Mills.
Walker, E., Evansville.
Walker, Isaac C., Indianapolis.
Walker, J. H., Jeffersonville.
Walker, William S., Lafayette.
Walker, W. O., Wolcott.
Wallace, J. F., Orland.
Waller, W. H, Angola.
Walters, C. G., Lawrenceburg.
Wands, William, Indianapolis.
Ward, John P., Union.
Washburn, R. R., Waldron.
Waterman, L. D., Indianapolis.
Watkins, F. H., Peru.
Watson, B. G., Auburn.
Watson, J. C., Knox.
Watts, E. K., Richmond.
Watters, P. J., Indianapolis.
Webber, I. B., Warsaw.
Weber, William, Columbia City.
Webster, D. E., Columbia City.
Webster, M. W., Huntington.
Webster, J. C., Lafayette.
Weddell, J. D., Convenience.
Weer, H. H., Bluffton.
Weever, J. B., Evansville.
Weinstein, L. J., Terre Haute.
Weir, Alonzo G., Kossuth.
Weist, Jacob R., Richmond.
Welborn, G. W., Stewartsville.
Welchell, T, C., Goldsmith.
Wells, A. W., Oxford.
Wenger, N. R., Coesse.
Wertz, Tolliver, Evansville.
West, J. F., Kokomo.
Wetherell, R. B., Lafayette.
Wharton, W. L., New Cumberland.

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Wheeler, Thomas, Bloomfield.
Wheelock, K. K., Fort Wayne.
Whery, Mary A., Fort Wayne.
Whery, W. P., Fort Wayne.
Whitcomb, J. H., Boswell.
White, C. A., Danville.
White, W. H., Amo.
White, E. G., Lagrange.
White, G. W., Mitchell.
White, J. K., Pennville.
White, R. Parks, Warsaw.
Whited, J. L., Bloomington.
Whitehead, W. E., Brownstown.
Whitesell, P. P., Clarksville.
Whitney, W. D., Muncie.
Whitson, Eli M., Jonesboro.
Witting, A. P., St. Joseph.
Wickersham, N. L., Anderson.
Wickham, Wm., South Bend.
Wilcox, F. H., New Albany.
Wiles, W. V., Spencer.
Williams, Frank, New Brunswick.
Williams, J. R., Eaton.
Williams, J. B., Grafton.
Williams, Lewis, Marion.
Williams, L. L., Jeffersonville.
Williams, F. A., New Brunswick.
Williams, Salathiel T., Kendallville.
Williams, T. B., Angola.
Williams, W. S., Kendallville.
Williams, C. H. Summitville.
Williamson, Peter E., Sweetser.
Williamson, Wm. V., Sylvania.
Willien, L. J., Terre Haute.
Williford, G. W., Washington.
Williford, W. C., Washington.
Willis, J. R., Terre Haute.
Winans, H. M., Muncie.
Wilson, A. L., Indianapolis.
Wilson, J. B., Stewartsville.
Wilson, J. H., Plymouth.
Wilson, R. J., Salem.
Wilson, L. J., Domestic.
Wilson, L. W., New Harmony.
Wilson, Mrs. Olive, Fairmount.
Wilson, W., Yankeetown.
Wilson, James, Wabash.
Wilson, William T., Bunker Hill.
Wilton, Isaiah, Evansville.
Winters, W. H., Whitelick.
Winton, C. F., Washington.
Winston, L. V., Knightstown.
Wiseman, B. W. S., Marmont.
Wishard, W. H., Indianapolis.
Wishard, W. N., Indianapolis.
Wisner, W. E., Columbus.
Wolf, J. G., Morristown.
Wolfe, H. S., New Albany.
Wollenmann, A. G., Ferdinand.
Wood, Hugh D., Angola.
Wood, Theodore F., Metz.
Wood, N. S., Roachdale.
Woodburn, F. C., Indianapolis.
Woodburn, J. H., Indianapolis.
Wooden, E. F., Homer.
Woollen, G. V., Indianapolis.
Work, J. A., Elkhart.
Work, W. F., Charlestown.
Worrell, J. P., Terre Haute.
Worsham, Ludson, Evansville.
Wrennick, Geo., Advance.
Wright, Charles L., Huntington.
Wright, Ervin, Huntington.
Wright, J. W., Kokomo.
Wright, M. R., Knox.
Wright, W. M., Indianapolis.
Wyatt, A. R., Lagrange.
Wyeth, Charles, Terre Haute.
Wymen, C., Connersville.
Wynn, F. B., Indianapolis.

Yancy, S. T., Fortville.
Yandell, W., Huron.
Yockey, David, Blountsville.
Yocum, Boaz, White Hall.
Yost, J. L. W., Mitchell.
Young, S. J., Terre Haute.
Young, George M., Evansville.
Young, T. B. Poseyville.
Young, M. V., Frankfort.
Young, J. B., Newark.
Yount, Silas T., Lafayette.
Yountman, A. B., Breman.

Zaring, C. F., Reelsville.
Zimmerman, Charles, Terre Haute.
Ziteke, Joseph, Batesville.

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